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FROM SILVER TO SKIS: A HISTORY OF ALTA, UTAH, AND  
LITTLE COTTONWOOD CANYON, 1847-1966

by

Anthony Will Bowman

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

MASTER OF ARTS

in

History

UTAH STATE UNIVERSITY  
Logan, Utah

1967

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## PREFACE

My interest in Alta, Utah, as a thesis topic was aroused during the winter of 1964-65, when I lived and worked at the ski resort as a ski patrolman. Since the history of the canyon and that of Alta are interwoven to such an inextricable extent, I have chosen to treat them together as comprising one unit of study.

A subject which is a "living issue" and not a "historical corpse" upon which the historian may carve and dissect, presents a special problem of evaluation. Since there has been such a short period of time from which to gain a perspective, it has been difficult to evaluate the ski period.

I am very deeply indebted to many people for their many kindnesses and their helpfulness to me in my attempt to gather information for this study. I am particularly grateful to A. W. Lund, Assistant Historian of the Church of Jesus Christ of Latter-day Saints and his staff; to Miles Romney, Manager of the Utah Mining Association; to Dr. Leonard J. Arrington, Utah State University; to Professor Lucile Pratt, Utah State University; to Dr. Everett L. Cooley, Director of the Utah State Historical Society and his staff; to staff members of the Wasatch National Forest, Headquarters Office, Salt Lake Ranger District office and Alta

Research Center. I also wish to gratefully acknowledge the help given to me by C. B. Morton, Vice President and General Manager of the Salt Lake City Winter Sports Association, and Dr. S. George Ellsworth under whose direction this thesis was prepared.

Lastly, thanks is freely given to those persons who gave of their time and opinions during interviews with me. Neither they, however, nor anyone else has any share in any shortcomings of this effort, for which I alone bear the ultimate responsibility.

*Anthony W. Bowman*

Anthony Will Bowman



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## ABSTRACT

From Silver to Skis: A History of Alta, Utah and

Little Cottonwood Canyon, 1847-1966

by

Anthony Will Bowman, Master of Arts

Utah State University, 1967

Major Professor: Miss Lucile Pratt

Department: History

In this study the former mining town and present ski resort of Alta, Utah, and the Little Cottonwood Canyon (in which Alta is located) are treated as one unit of study.

After a brief treatment of the natural setting, man's earliest activities in the region are traced through the winter of 1966. Activities which are examined include: exploring, trapping, logging, grazing, milling with the major emphasis upon quarrying, mining, skiing and settlement.

Until 1864 the region was utilized for non-mining activities. By the 1870's, mining "boomed" and various settlements were established in the canyon. The most famous of these was Alta. Although not formally chartered, Alta was typical of frontier mining camps.

Following the decline of mining, the area lay somewhat dormant until the advent of organized skiing in 1937. Now Alta's wealth is found in the snow that falls upon surrounding mountains and not in the silver that was mined from them.

(114 pages)

CHAPTER I  
LITTLE COTTONWOOD CANYON 1847-1863

The Setting

The most prominent physiographic feature of the State of Utah received its name as the result of a misunderstanding between the Ute Indians and early trappers of the rugged northeastern part of the State. To the Utes, "wasatch" meant a "low pass over a high range of mountains."<sup>1</sup> This meaning was misconstrued by the trappers and given to the range of mountains extending from southern Idaho to central Utah.<sup>2</sup>

The Wasatch Mountain Range was formed from huge blocks of rock which were thrust two to eight thousand feet above the plain of the Great Basin. The range forms the abrupt, eastern wall of the basin and is considered a portion of the Rocky Mountain system.<sup>3</sup>

Not far from the western slope of the Wasatch, the shallow waters of

---

<sup>1</sup>Rufus Wood Leigh, Five Hundred Utah Place Names: Their Origin and Significance (Salt Lake City: n.p., 1961), p. 105.

<sup>2</sup>In their travels, the trappers occasionally encountered Ute Indians and in receiving directions from them, became confused when they pointed toward the high, snow-covered passes and said "wasatch." U.S. Department of Agriculture, Forest Service, Wasatch National Forest, "Forest History, Local Indians." (Typescript, in the files of the Forest Headquarters, Salt Lake City).

<sup>3</sup>Wallace Walter Atwood, The Rocky Mountains (New York: Vanguard Press, 1945), p. 81.

Great Salt Lake stretch out on the broad basin flats. The lake is fed by the runoff from the mountains, which flows across the flats in numerous streams and rivers.

Nomadic bands of Indians lived along the mountain front and in the various canyons of the Wasatch. The Indians were primarily hunters and gatherers, and had not reached a high plateau of civilization when their activities were gradually reduced by the arrival of white men permanently settling in the area.<sup>4</sup> It is believed that white men were in the region around the Great Salt Lake prior to its first documented discovery, in 1824-5, by Jim Bridger.<sup>5</sup> The activity of the white men in the area was limited to hunting, trapping, exploring and to simply passing through on their way to other parts. Thus it was until the advent of the main body of Mormon pioneers on July 24, 1847.

The Mormons passed through the Wasatch Mountains on their trek from Winter Quarters (near Council Bluffs, Iowa) to the Salt Lake Valley.<sup>6</sup> They were the first permanent white settlers in the valley. Southeast of the lake some twenty-two miles, they established their principal settlement, Salt Lake City.

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<sup>4</sup>Wasatch National Forest, "Forest History--Local Indians."

<sup>5</sup>Hiram Martin Chittenden, The American Fur Trade of the Far West, II (Stanford, California: Academic Reprints, 1954), 794-6.

<sup>6</sup>Initially it was called the Valley of the Great Salt Lake. It is bordered by the Wasatch Mountains on the east, the Oquirrh Mountains on the west and the Great Salt Lake on the northwest.

Shortly after their arrival, the Mormon leader Brigham Young, sent out exploring parties to "learn the facilities of the country . . ."<sup>7</sup> The reports of those explorers indicated that "the canyons [of the Salt Lake Valley] contained plenty of timber, such as sugar-maple, ash, oak, fir and pine."<sup>8</sup> This was welcome news since there were but few trees growing in the valley at that time.<sup>9</sup>

About ten miles to the southeast of Salt Lake City, a narrow-mouthed, dead-end canyon, cuts into the Wasatch Mountains. The head of the canyon reaches the north-south crest line of the range. Soon after their arrival into the valley, the Mormon pioneers had explored and named this canyon.<sup>10</sup> On account of its "littleness of width"<sup>11</sup> and because of the clumps of cottonwood trees growing along the banks of its stream, the canyon was called Little Cottonwood.<sup>12</sup>

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<sup>7</sup> Orson F. Whitney, History of Utah, I (Salt Lake City: George Q. Cannon and Sons, 1892), 335.

<sup>8</sup> Ibid., p. 337.

<sup>9</sup> Joel Edward Ricks, Forms and Methods of Early Mormon Settlement in Utah and the Surrounding Region, 1847 to 1877 (Utah State University Monograph Series, Vol. XI, No. 2; Logan, Utah: Utah State University Press, 1964), p. 13.

<sup>10</sup> Church of Jesus Christ of Latter-day Saints Historian's Library, Salt Lake City, "Granite Ward History." (Typescript.)

<sup>11</sup> John Codman, The Mormon Country. A Summer with the Latter-day Saints (New York: United States Publishing Company, 1874), p. 100.

<sup>12</sup> Asa N. Bowthorpe, "History of Pioneer Sawmills and Local Canyons of the Salt Lake Valley" (Salt Lake City: By the author. 1961), p. 1. (Mimeographed, in the files of the Wasatch National Forest Headquarters Salt Lake City.)



The canyon constitutes a symmetrical, U-shaped trough, thirteen miles in length. Near its head, the canyon broadens out into a large, catchment basin some two and one-half miles long and over one mile wide.<sup>13</sup> At the mouth of the canyon, the ridges form nearly perpendicular walls. They rise to a maximum elevation of about 11,000 feet.

Snow accumulation in the catchment basin, during the Pleistocene Period, formed the largest glacier of the range. Moving west from the crest, the glacier gouged out the canyon.<sup>14</sup> The contour of the canyon was further deepened by the cutting action of Little Cottonwood stream. During its flow to the Great Salt Lake, the stream descends from an elevation of about 9,700 feet to about 4,200 feet.

#### Pioneer Uses of the Canyon

The pioneers centered a great deal of their activities in and around the Little Cottonwood and other canyons of the Salt Lake Valley. The canyons provided a source of water for culinary purposes, irrigation and mill power, timber and stone for construction, land for grazing, game for hunting and a cool retreat for outings.

The first use of the canyon was regulated by Mormon Church leaders.

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<sup>13</sup>Wallace Walter Atwood, Glaciation of the Unta[sic] and Wasatch Mountains, U.S. Department of the Interior, Geological Survey Professional Paper No. 61 (Washington, D.C.:Government Printing Office, 1909), p. 84.

<sup>14</sup>Ibid., pp. 84, 91.

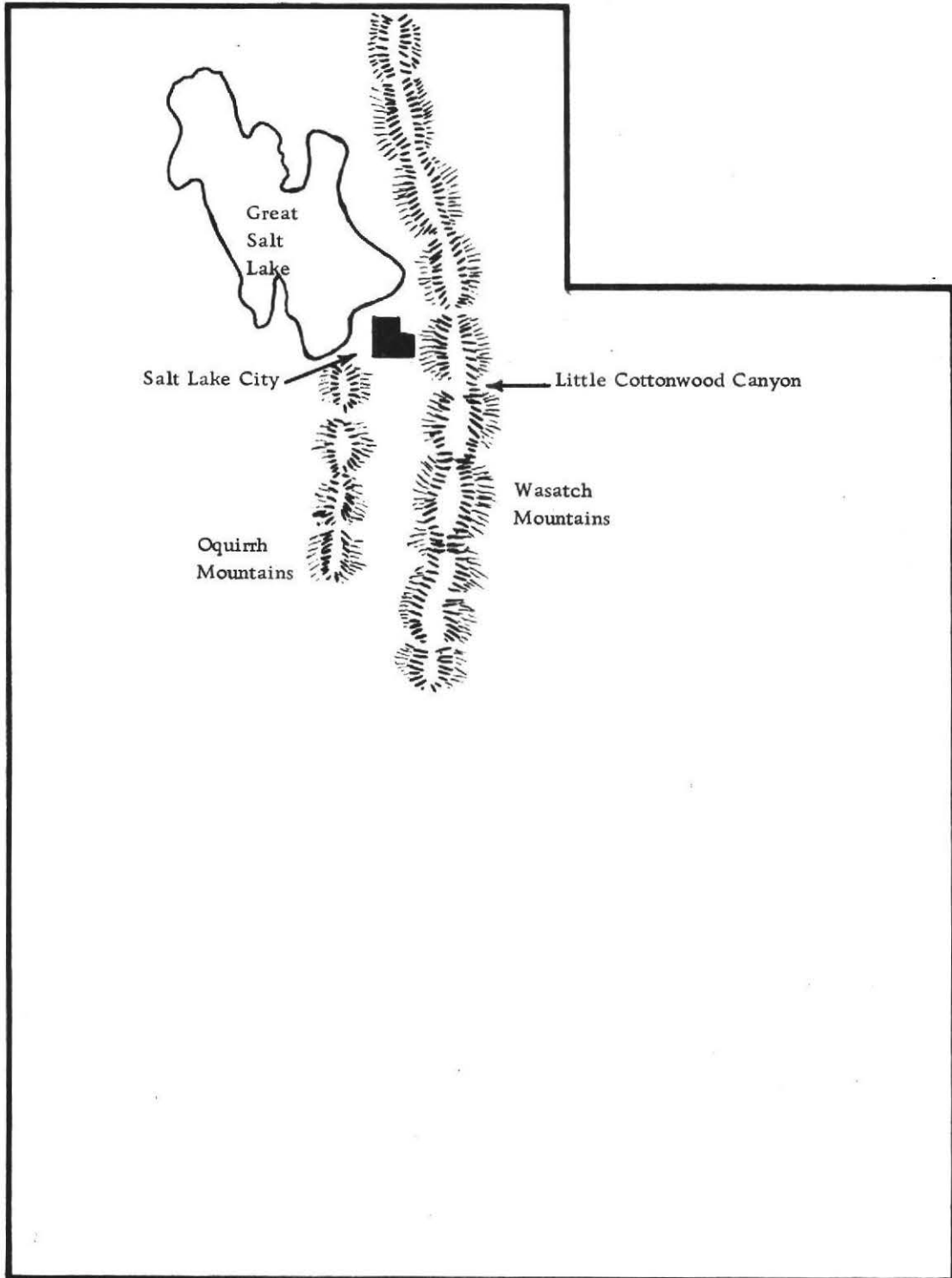


Figure 1. Map of Utah showing the location of Little Cottonwood Canyon

Shortly after the founding of Salt Lake City, they declared that:

there would be no private ownership in the water streams; that wood and timber would be regarded as community property. It was also determined that only "dead timber" should be used as fuel.<sup>15</sup>

The Church leaders knew that within a relatively short period of time, the population growth of Salt Lake City and environs would tax the productivity of the region to such an extent that if restrictions were not enacted, newcomers would find greatly limited opportunities in the land. The cooperative measures were consistent with Mormon economic practices of that period.<sup>16</sup>

With the granting of territorial status to Utah in 1850, regulatory authority was constituted in the Territorial legislature. In 1852, the Legislature granted control over "mill sites and timber" to the County courts.<sup>17</sup> The Salt Lake County Court granted "rights" to work the resources of Little Cottonwood Canyon to petitioners of the court. From accounts in the "Minute Book" of the court, it seems that petitions were granted on the basis of the economic betterment of the entire community.<sup>18</sup>

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<sup>15</sup>B. H. Roberts, A Comprehensive History of the Church of Jesus Christ of Latter-day Saints: Century I (Salt Lake City: The Church, 1930), III, 269.

<sup>16</sup>Leonard J. Arrington, Great Basin Kingdom: An Economic History of the Latter-day Saints, 1830-1900 (Cambridge: Harvard University Press, 1958), p. 52.

<sup>17</sup>Ibid., p. 54.

<sup>18</sup>Salt Lake County, "Minutes of the County Court, Book A" (Manuscript, in the archives of the State Historical Society.)

Grantees had to be able to successfully exploit their grant in order to maintain their rights.

Grazing rights in the mouth of the canyon were granted by the court in 1853.<sup>19</sup> Grazing, however, seems to have been one of the minor uses of the canyon.

The scarcity of trees in the Salt Lake Valley was offset somewhat by the "abundance of good timber . . ." found in the canyons of the Valley.<sup>20</sup> The historian Hubert Howe Bancroft states that "in places of difficult access, the timber was abundant and of good quality."<sup>21</sup> A traveler in Little Cottonwood Canyon found the mountain sides of the canyon "well timbered."<sup>22</sup>

Since the timber supply was somewhat removed from Salt Lake City and other settlements, roads and bridges were constructed to provide access to the mouths of the canyons. Church leaders and in later times, civil authorities, were responsible for construction and maintenance of

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<sup>19</sup> Ibid., p. 42.

<sup>20</sup> W[illiam] Clayton, Latter-day Saints' Emigrants' [sic] Guide (Reprinted; St. Louis: By the author, 1848), p. 20. The account further states that the timber was mostly Balsam Fir (*Abies concolor*).

<sup>21</sup> Hubert Howe Bancroft, History of Utah, 1540-1886, Vol. XXVI: The Works of Hubert Howe Bancroft (San Francisco: The History Company, 1889), p. 323.

<sup>22</sup> Codman, p. 102.

the roads. Funds for materials and services were obtained from use taxes and levies.<sup>23</sup> Once a road was built up to the mouth of a canyon it was continued into the canyon by the granting of petitions for "road rights." Rude trails preceded wagon roads into the upper reaches of the canyon.

In November of 1853, the County Court granted Jeter Clinton rights "to make and keep a good wagon road" in Little Cottonwood Canyon. The grant stipulated that he could charge "all who used it" to pay for construction and maintenance costs. Payment could be made in cash, kind, or in labor on the road.<sup>24</sup> Traffic in the canyon was regulated by a toll gate at the mouth of the canyon.

Sawmills were built on authority obtained from the County Court. The mills were built where there was access to water power and hence located near to the rushing stream. They were also placed where they could mill the greatest number of logs. These three factors, combined with the ease in which materials could be brought in and lumber products taken out, determined the location of the mills.

Because most of the cutting was done during the winter months when snow was deep, stumps from ten to twelve feet high were left. The snow depth of the previous winter could be calculated by the height of the

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<sup>23</sup>Kate B. Carter (ed.), Heart Throbs of the West, I (Salt Lake City: Daughters of Utah Pioneers, 1947), pp. 195-200.

<sup>24</sup>Salt Lake County, "County Road Book, Book A," November 16, 1853.

stumps found the following spring.<sup>25</sup> In general, it may be stated that there was no charge for cutting timber. Fees, however, were assessed for hauling lumber and logs over the roads down the canyon.<sup>26</sup>

The south ridge of the canyon is penetrated by numerous draws and gluches, some of which extend three miles out from the canyon. It was near the base of these draws that the sawmills usually were located. The first sawmill was built in the canyon in about 1851, probably near Tanner's Flat.<sup>27</sup> Other mills were built at Hogum Flat, Coal Pitt Flat, White Pine Fork and at other locations. The pioneer loggers named several of the forks after the type tree they were harvesting in them. Today Red Pine and White Pine forks still bear these pioneer names.<sup>28</sup>

Early in the decade of the 1860's steam-powered sawmills were operating in the canyon.<sup>29</sup> Steam power granted a flexibility in the location

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<sup>25</sup>Codman, p. 102.

<sup>26</sup>Bancroft, p. 727.

<sup>27</sup>C. W. Lockerbie, "A Short History of Alta," News Bulletin of the Mineralogical Society of Utah, IX (August, 1943), 19.

<sup>28</sup>Red Pine Fork took its name from Douglas Fir (*Pseudotsuga taxifolia*) which was locally called, Red Pine. Interview with Asa N. Bowthorpe, U. S. Soil Conservation Service, retired, October 1, 1965. The name for White Pine Fork probably came from the Englemann Spruce (*Picea englemanni*) locally called White Pine. U. S. Department of Agriculture, Forest Service Region Four, How to Know the Trees of the Intermountain Region (Ogden, Utah: Forest Service, n.d.), p. 5.

<sup>29</sup>Bowthorpe, "Pioneer Sawmills," p. 1.

of a mill. Although water was necessary for the operation of the boiler, the mill site could be located farther from the stream. Along with the advantage of steam power, came the peril of boiler explosions. The lives of various mill operators were taken in this manner.<sup>30</sup>

Beginning in 1855, preparations were made for the systematic quarrying of rock in the mouth of the canyon. The granite in Little Cottonwood was needed for the construction of the Mormon Salt Lake Temple.<sup>31</sup> The granite was quarried from the huge blocks that had toppled down from the steep sides of the canyon and were found strewn along the canyon floor on both sides of the stream. As the supply became exhausted, the quarrying moved farther up the canyon.<sup>32</sup>

After being cut into blocks, some of them weighing up to five tons, the granite was ox-teamed to the temple block in Salt Lake City. The extraction of the Little Cottonwood granite required that the road system from the canyon be improved and constantly maintained. The Church took the initiative in keeping the way open for a steady flow of granite to

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<sup>30</sup>Ibid.

<sup>31</sup>Arrington, p. 112. Technically speaking, the gray rock at the mouth of Little Cottonwood Canyon is quartz monzonite. Commonly and throughout this study it is referred to as granite. B. S. Butler, Geology and Ore Deposits of the San Francisco and Adjacent Districts, Utah, U.S. Department of the Interior, Geological Survey Professional Paper No. 80 (Washington, D.C.: Government Printing Office, 1913), p. 52.

<sup>32</sup>LDS Library, "Granite Ward History."

Salt Lake City.<sup>33</sup> The improved condition of the road to the canyon acted as a stimulus to logging and lumbering farther up in the canyon.

During the first sixteen years that the Mormon pioneers lived in the Salt Lake Valley, Little Cottonwood Canyon yielded generous supplies of granite, timber and water. Since the Mormons were the only white settlers in the region activities in the canyon were entirely a Mormon venture.

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<sup>33</sup>Arrington, pp. 214-15.



## CHAPTER II

### BONANZA IN THE WASATCH

#### The Period from 1864 to 1900

##### The army in Utah

A non-Mormon element entered the Utah scene when a force of regular United States Army troops was stationed forty miles southwest of Salt Lake City in 1858. The troops remained in the Territory until the summer of 1861, when they were transferred to the eastern portion of the nation to join in the Civil War.<sup>1</sup>

The following summer, 1862, the regulars were replaced by 750 soldiers of the Third California Volunteers. Under the direction of their commander, Colonel Patrick E. Connor, they established Camp Douglas, overlooking the Salt Lake Valley about a mile east of Salt Lake City.<sup>2</sup>

The Volunteers were dispatched to Utah to protect the overland mail routes from possible Indian attacks and to keep the Mormons under "surveillance." The Mormon reaction to the Southern rebellion was not known and sending the Volunteers to Utah was considered to be a good precaution to insure the stability of the Union in the Territory of Utah.

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<sup>1</sup>Arrington, Great Basin Kingdom, p. 193.

<sup>2</sup>Arrington, "Abundance from the Earth: The Beginnings of Commercial Mining in Utah," Utah Historical Quarterly, XXXI (Summer, 1963), 194.

Many of the men of the Third Volunteers were veterans of the California and Nevada mining regions and were interested in prospecting for minerals during their stay in Utah. Colonel Connor was obliging and furloughed them, granting them sufficient time to explore the surrounding hills and mountains in search of precious metals. In some instances he provided the supplies for the expeditions.<sup>3</sup>

Ore discoveries and the organization of  
mining districts

During the summer of 1863, ore was discovered at Bingham Canyon in the Oquirrh Mountains. Bingham Canyon is located directly west across the Salt Lake Valley from Little Cottonwood Canyon and the ore discovery there heightened the interest in prospecting the surrounding mountains and canyons. Utah's first mining district was organized to provide the means for the registration of mineral claims in Bingham Canyon. In September of 1863, a group of the Volunteers organized the Wasatch Mining District to include the Wasatch Mountains from Weber Canyon to the north, to the head of Utah Lake to the south.<sup>4</sup> Winter snows hampered further prospecting in the Wasatch Mountains until the following summer.

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<sup>3</sup>Ibid.

<sup>4</sup>Edward L. Sloan (ed.), Gazetteer of Utah and Salt Lake City Directory, 1874 (Salt Lake City: Salt Lake Herald Publishing Company, 1874), p. 124.

During July of 1864, argentiferous (silver containing) ore was discovered in Little Cottonwood Canyon. The historian Hubert Howe Bancroft states that:

The first discovery of silver-bearing rock in the Wasatch Range was made by General Connor in person, at the head of Little Cottonwood Canyon. The first ore encountered was galena and afterwards carbonate of lead, both being found in chimneys.<sup>5</sup>

Another version of the first discovery credits the wife of a surgeon in Connor's command as having discovered the ore. General Connor, officers and men of the Volunteers and some of their wives, were accustomed to picnicing in the canyons not too distant from Camp Douglas and it was on such an event that claims were located in Bingham Canyon.<sup>6</sup> It was also at a picnic, held on a hill north of Little Cottonwood Canyon that the surgeon's wife was credited with making the discovery. She took a walk and wandered away from the main party.

She was somewhat of a student of metals and she absent-mindedly picked up a piece of silver-bearing quartz during her ramble, that she suddenly realized was highly valuable. Hastening back to the camp, she told the soldiers that she had found a piece of float [loose ore, detached from the original formation], and that they might be camping on a mountain of silver.<sup>7</sup>

The details of what happened following the discovery of silver ore in Little Cottonwood Canyon are more clearly understood than the actual discovery itself. Under the direction of General Connor, the soldiers who

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<sup>5</sup>Bancroft, p. 742.

<sup>6</sup>Arrington, Utah Historical Quarterly, XXI, No. 3, 199.

<sup>7</sup>Deseret News (Salt Lake City), December 16, 1933.

were present at the picnic and who were also the miners of the Wasatch Mining District, held a meeting at Camp Douglas. William H. Farnham was named chairman and stated that the "object of the meeting was to create a new mining district, elect a recorder and establish by-laws for the government of said district."<sup>8</sup> The new district encompassed the Wasatch Range of Mountains between Parley's Creek to the north and the head of Utah Lake to the south.<sup>9</sup>

The district was named for Upper, Middle and Lower Mountain Lakes, near the head of Big Cottonwood Canyon and was called the Mountain Lake Mining District.<sup>10</sup> The miners of the district were allowed to claim 200 feet along a lode (body of ore) and 500 feet on each side of it.<sup>11</sup> The by-laws approved at the meeting followed the pattern that was established in the mining regions of California and Nevada.

The Volunteers were looking for surface gold deposits, and the discovery of ores of an unfamiliar nature later on stood in the way of

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<sup>8</sup>U.S. Department of the Interior, Land Office Salt Lake City, "By-laws of Mining Districts, Mountain Lake Mining District."

<sup>9</sup>Ibid., "Article No. 1."

<sup>10</sup>B. S. Butler, C. F. Loughlin and V. C. Heikes et al., The Ore Deposites of Utah, U. S. Department of the Interior, Geological Survey Professional Paper No. 111 (Washington, D.C.: Government Printing Office, 1920), p. 254. Today the lakes are known as Silver Lake and Twin Lakes. Ibid.

<sup>11</sup>Land Office, "Mountain Lake Mining District, Article No. 2."

immediate and successful development of the claims into productive mines.<sup>12</sup>

The first valid claim recorded in the district books was in August of 1865, by Silas Brain. Brain and another early locator, a Mr. Pool, were acting as agents for Dr. O. H. Congar, a representative of the New York and Utah Prospecting and Mining Company.<sup>13</sup>

During this period, the majority of the men engaged in prospecting or in trying to develop the mines were from outside of the Territory of Utah and were non-Mormon.<sup>14</sup>

As the outbreak of hostilities at the beginning of the Civil War influenced the discovery of ore and the organization of mining districts in Utah, so the termination of the war in April of 1865, exerted a great influence upon mining in the Territory. With the close of the Civil War, the Volunteers were mustered out of the service of the United States. Prior to their departure from Utah, they called a meeting of the miners and on May 29, 1866, amended the district's by-laws.<sup>15</sup> The Volunteers

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<sup>12</sup>Ibid., "Article No. 8."

<sup>13</sup>Rossiter W. Raymond, Silver and Gold: An Account of the Mining and Metallurgical Industry of the United States (New York: J. B. Ford and Company, 1873), p. 321.

<sup>14</sup>Arrington, Great Basin Kingdom, p. 203.

<sup>15</sup>Land Office, "Mountain Lake Mining District, as amended May 29, 1866."

thought that this action would render their mining claims valid for them if and when they returned to Utah. In reality, it only resulted in an almost hopeless retardation of mining development in the district for a period of about three years.

Under the original district by-laws, Article No. 5 required that one "faithful day's" work be performed on each claim "each month" of the year in order to maintain a valid district title to it. In Article No. 4 of the 1866 amendment to the by-laws, liberal changes in this requirement specified that:

If within six months after the adoption of this article, one day's work shall have been done on any one claim, or twelve days work by any company on their lode in this mining district or within six months after the location of claims, the ground so claimed shall in fee (except as against the United States) [belong with unrestricted rights of deposition] to the owners or their assigns forever, and the same shall not be subject to relocation [that is filed on by another party].<sup>16</sup>

Having thus amended the by-laws, the Volunteers departed from the territory. Nevertheless, problems arose, when in the absence of the Volunteers, thirty-one of the remaining miners met on August 30, 1869 and further amended the by-laws so that "three day's work every year" were required to maintain a valid claim in the district. Failure to comply with the provisions of this amendment meant that claims not being worked at least three days in each year were subject to relocation.<sup>17</sup> Since no

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<sup>16</sup> Ibid., "Article No. 4."

<sup>17</sup> Ibid., "By-laws, as amended 1869, Article No. 4."

work was done on many of the Volunteers' claims, new parties relocated the claims in their own names. Some accounts state that the claims were "jumped."<sup>18</sup> In the summer of 1871, the U. S. Commissioner of Mining Statistics, Rossiter Raymond summed up the condition of the disputed claims as follows:

In Utah there were many mines discovered some years ago and abandoned. Now a second crop of discoverers has come, and the old ones have returned in swarms to claim their "rights."<sup>19</sup>

The condition of disputed ownership of mining claims stood as a barrier to the successful development of the district. The best claims were plagued by the "blighting curse of litigation."<sup>20</sup>

One issue involving the district was not disputed--that the ore was rich. An 1866 assay certificate indicated that one tone of ore was worth \$422 in terms of recovered metals. The assay certificate is indicative of the trend in the district--that of an overwhelming amount of silver was recovered in proportion to that of gold.<sup>21</sup> In spite of these indications of rich ore in the district, financially successful mines were slow in being developed.

Great amounts of rock had to be removed in order to expose and

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<sup>18</sup>Butler et al., p. 254; Salt Lake Mining Review, January 15, 1916.

<sup>19</sup>Raymond, Silver and Gold, p. 321.

<sup>20</sup>Ibid., p. 302.

<sup>21</sup>John R. Murphy, The Mineral Resources of the Territory of Utah with Mining Statistics and Maps (San Francisco: A. L. Bancroft and Co., 1872), p. 22.

obtain the ore. To do this required a substantial capital investment to transform it from a claim into a producing mine. Mines are developed and not discovered!

The litigation over the disputed claims only served to impede the necessary flow of capital into the district. The risk was too great to take the chance of developing a property only to lose it over a claim dispute. This was true only as long as the high cost of developing the mines prevailed.

In addition to legal rights, two other factors retarded the development of the district. First, there were no successfully-operating smelters in the Territory which could economically recover metals from the ores. Second, the distance from the mines to smelters outside of the Territory and the costs of transportation made it economically unattractive to ship large quantities of ore out of the Territory.

As a result of these factors, attempts were undertaken to erect smelters and process the ore in the canyon. The first smelter in Little Cottonwood Canyon was built by Dr. O. H. Congar of the New York and Utah Prospecting and Mining Company, during the summer of 1866. Congar improved the road to Gerard's sawmill, some nine miles up the canyon, which was near the mines. The venture wasn't successful and the following summer, a German metallurgist named Reese was somewhat more fortunate and produced about 1,000 pounds of silver bars from the



cinders left by Congar.<sup>22</sup> These early attempts at smelting were not an economic success and were discontinued shortly thereafter.

High freighting costs and the fact that little was known about smelting the complex silver ores, contributed to the smelting failure. Smelting was a "new task to Connor and his Californians, whose experiences were confined to mining and milling gold ores."<sup>23</sup>

These early attempts at smelting, although not successful on a sustained basis, indicated that if the correct processing methods were adopted and the cost of transportation reduced, the mines of the district had the potential of becoming a bonanza in the Wasatch Mountains.

The same problems that were encountered by the Volunteers had been encountered by the Mormon Pioneers during their attempts to exploit the mineral deposits of the Territory. They were aware of mineral deposits and had worked the "most promising finds." Mormon leaders "seem to have known, as other statesmen have known, that an advanced and progressing economy could not be built without mining. . . ."<sup>24</sup>

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<sup>22</sup>Ibid.; F. C. Calkins, B. S. Butler and V. C. Heikes, Geology and Ore Deposits of the Cottonwood-American Fork Area, Utah with Sections of History and Production, U.S. Department of the Interior, Geological Survey Professional Paper No. 201 (Washington, D.C.: Government Printing Office, 1943), p. 73.

<sup>23</sup>Robert Wallace, "Early History of Lead Smelting in the West," Ax-I-Dent-Ax, XIV (May, 1929), 2.

<sup>24</sup>Arrington, Utah Historical Quarterly, XXXI, No. 3.

Although mining was engaged in by the pioneers prior to the discoveries and developments made by the Volunteers, it never "occupied a majority of the population."<sup>25</sup>

The cost of transportation and the "hard to smelt" Utah ores made mining a less profitable occupation than agriculture.<sup>26</sup> Brigham Young was interested in developing all of Utah's natural resources but "expressed the opinion that the ores of Utah had never yet been skillfully treated." He further stated "what we used to call lead, and dig and melt up into bullets, these fellows [referring to the Volunteers] call silver now!"<sup>27</sup>

The first of the obstacles, standing in the way of the development of the district, to be removed was the high cost of transportation. As the transcontinental railroad pushed farther into Utah, each mile of track completed brought the success of the Little Cottonwood mines that much closer to becoming a profitable reality.

#### The railroad makes mining profitable

The driving of the last spike, joining the Central Pacific railroad from

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<sup>25</sup> Ibid., p. 193.

<sup>26</sup> Rossiter W. Raymond, Mineral Resources of the States and Territories West of the Rocky Mountains, 1869-70 (Washington, D.C.: Government Printing Office, 1870), p. 168.

<sup>27</sup> Ibid.

the west with the Union Pacific from the east, on May 10, 1869, made possible the shipment of ten tons of ore from the Monitor and Magnet mine in Little Cottonwood Canyon, on July 25th of that year. The firm of Walker Brothers of Salt Lake City sent the ore to the smelters of Thomas H. Selby and Company in San Francisco. The shipment yielded the owners \$32.50 per ton in silver after payment of transportation costs.<sup>28</sup> The ore was hauled by wagon down the canyon and then taken to a point near Ogden and loaded on cars of the Union Pacific Railroad.<sup>29</sup>

A line, the Utah Central Railroad, connecting Salt Lake City with the transcontinental railroad near Ogden, was completed in January of 1870. The Utah Central Railroad "presented the long-looked-for opportunity of embarking in the business of mining."<sup>30</sup> The Utah Central was built by Mormon businessmen and Church leaders. Its most profitable cargo soon became ores from the Little Cottonwood mines.<sup>31</sup>

The next rail link to the Little Cottonwood mines was the Utah Southern Railroad which, by September of 1871, was operating to Sandy Station some thirteen miles south of Salt Lake City.<sup>32</sup>

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<sup>28</sup>Wallace, Ax-I-Dent-Ax, XIV, No. 6, 7.

<sup>29</sup>Ibid.

<sup>30</sup>Murphy, p. 4.

<sup>31</sup>Arrington, Great Basin Kingdom, p. 275.

<sup>32</sup>Ibid., p. 278.

Mormon businessmen later on combined with mining interests and built a narrow gauge railroad, the Wasatch and Jordan Valley, going east from Sandy to the mouth of Little Cottonwood Canyon. It was in the best interest of the Church to have an economical means of transporting granite from the canyon to Salt Lake City and the mining interests were interested in bringing the railroad as close to the mines as possible.<sup>33</sup> The line was completed to the Church operated granite quarries on May 3, 1873 and by September 20th of that same year, the line reached Fairfield Flat some two and one-half miles below the mines.<sup>34</sup> Granite for the Salt Lake Temple and ores from the mines that were destined for the smelter were the largest out-cargo from the canyon. Supplies for the quarries and the mines were the greatest incoming items.

Constructing the road to the canyon was a fairly easy task. The distance from the terminus of the railroad at Fairfield Flat to the mines, however, was a different story. The roadbed was located on the north side of the canyon well above the wagon road which was located near the stream. A snow shed was partially built into the side of the hill. It was hoped that with the snow sheds, the line would be protected from the deep winter snows and the terrible avalanches which they caused.<sup>35</sup>

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<sup>33</sup>Ibid., pp. 278-79.

<sup>34</sup>Butler et al., p. 119.

<sup>35</sup>Deseret News (Salt Lake City), November 13, 1872.

Steam engines pulled the cars as far as the granite quarries. From that point the cars were pulled by a team of mules, hitched in tandem, to the end of the line. The railroad was completed to Alta (the business center for the district) in 1876. Upon reaching Alta, the mules were turned loose to find their way back down the canyon. The train cars were loaded with ore and coasted down the canyon with a brakeman controlling the dangerous speeds.<sup>36</sup>

The Wasatch and Jordan Valley Railroad became a portion of the Denver and Rio Grande Western Railway system in the winter of 1871.<sup>37</sup>

#### Development of the mines

There were no lode mines operating profitably in Utah prior to completion of the transcontinental railroad in 1869.<sup>38</sup> The interest in mining stimulated by the coming of the railroad prompted the separation of Little Cottonwood Canyon from the Mountain Lake Mining District. In June of 1870, the canyon was organized as a separate mining district called the

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<sup>36</sup>Kate B. Carter (ed.), Treasures of Pioneer History, VI (Salt Lake City: Daughters of Utah Pioneers, 1957), 395.

<sup>37</sup>Robert G. Athearn, "Utah and the Coming of the Denver and Rio Grande Railroad," Utah Historical Quarterly, XXVII, No. 2, 133.

<sup>38</sup>J. Ross Browne, Mineral Resources of the States and Territories West of the Mississippi, 1868, House of Representatives, Executive Document No. 54, 50th Congress, 3rd Session (Washington, D.C.: Government Printing Office, 1869), p. 168.

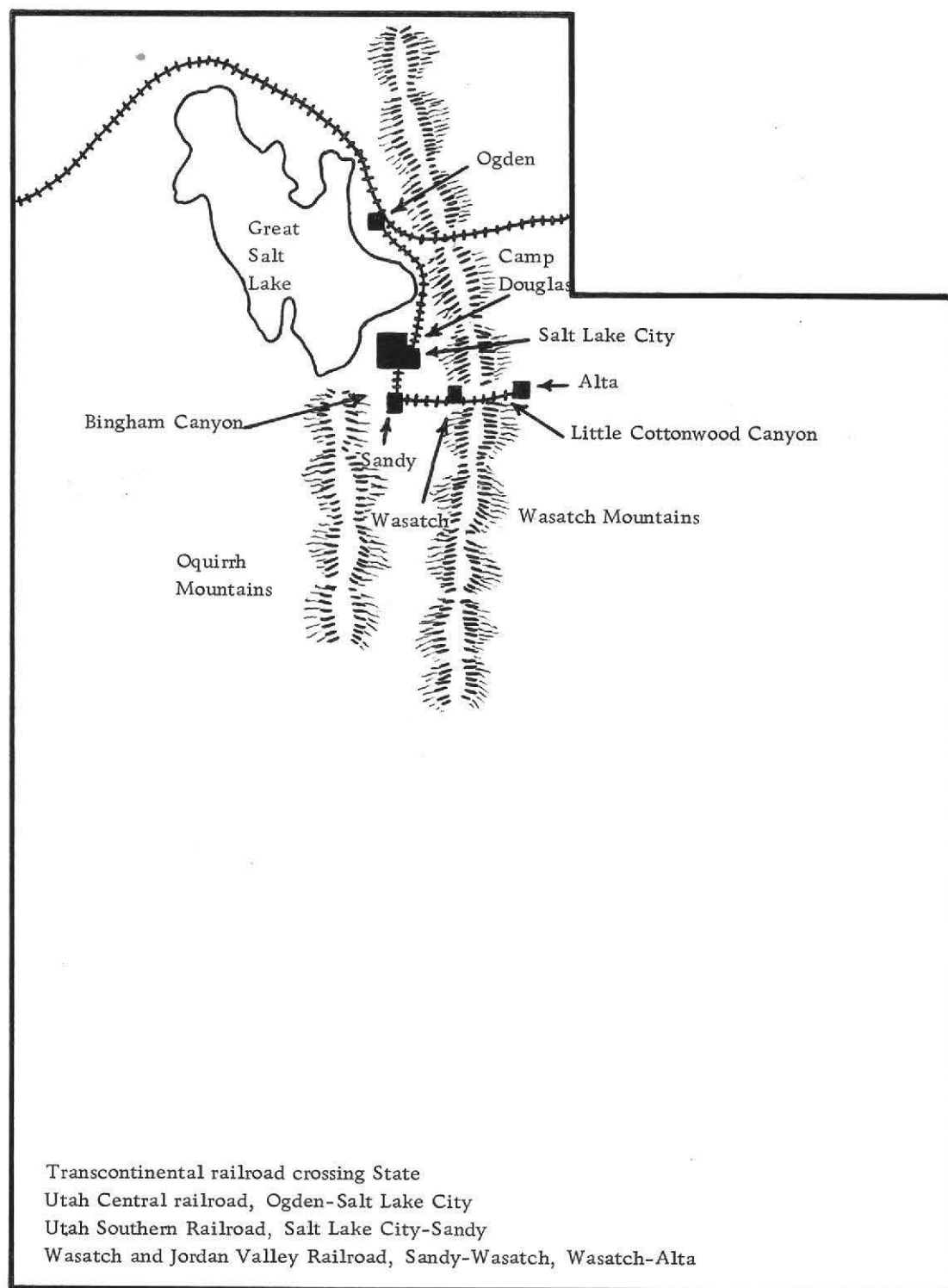


Figure 2. Map of Utah showing railroad service to Alta and the Little Cottonwood Mining District



Figure 3. Artist's conception of passengers descending narrow-gauge tramway in Little Cottonwood Canyon. Note snow sheds.

Courtesy Utah Historical Society

Little Cottonwood Mining District.<sup>39</sup> The district included all the land drained by the Little Cottonwood stream to a point near the mouth of the canyon.<sup>40</sup>

The development of mining in the district varied from that in mining districts in other neighboring states and territories. In Utah the first mining districts were organized after the establishment of a settled political government in the Territory. When the Little Cottonwood Mining District was organized, agriculture was well established in the Salt Lake Valley and produce was available to the miners at reasonable prices.<sup>41</sup> The Mormons, in addition to supplying food stuff to the miners, also held most of the ore hauling contracts.<sup>42</sup>

The first development of claims into mines was done by individuals, working alone and in partnerships with other men. Soon it was obvious that, due to the great amount of capital necessary to continue the work, more efficient business organizations would be necessary. Available capital in Utah was limited at that time. Stock companies from the eastern United States and from abroad, principally from England, financed most

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<sup>39</sup>Murphy, p. 59.

<sup>40</sup>Ibid., p. 57.

<sup>41</sup>Raymond, Silver and Gold, p. 300.

<sup>42</sup>Ibid.



of the mining ventures.<sup>43</sup> Two of the most prominent mines of the district, the Emma and the Flagstaff, were at some time controlled by British investors.<sup>44</sup>

Some of the mines were launched as partnerships or "grub stakes" and later sold to investors. The Emma Mine is a good example of such a transaction.<sup>45</sup>

In 1873, an event occurred which threatened to drive off British investments in the district. Following the purchase of the Emma Mine by British investors, for the sum of about \$5,000,000, the rich ore body of the mine ran out and there arose a great "cry of swindle" from across the sea. The failure was due to the termination of the ore body in a fault and poor management of the mine. The effect of these events was to cast a cloud on Western American mining stocks in general and particularly those of the Little Cottonwood region, on the London Stock Market.<sup>46</sup>

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<sup>43</sup>Clark Spence, British Investments and the American Mining Frontier, 1860-1901 (Ithaca: Cornell University Press, 1958), p. 263.

<sup>44</sup>Ibid., p. 265; The Emma Mine is discussed in: Spence, pp. 139-90; W. Turrentine Jackson, "The Infamous Emma Mine: A British Interest in the Little Cottonwood District, Utah Territory," Utah Historical Quarterly, XXIII (October, 1955), 339-62; J. J. Beeson, Report on the Property of the Emma Silver Mines Company in Little Cottonwood Mining District Alta, Utah (Salt Lake City: Emma Silver Mines Company, 1919).

<sup>45</sup>n.a., "The Silver Mountains of Utah," Harper's New Monthly Magazine, LXXX (September, 1876), 644-45. A "grub stake" was a simple partnership whereby one partner furnished the provisions--grub--for the prospecting partner, in exchange for a stake (share) in any discovery made by the prospecting partner thus subsidized.

<sup>46</sup>Utah Mining Gazette (Salt Lake City), October 18, 1873.

By-Laws of Little Cottonwood Mining District

- Article 1. This district shall be known by the name of Little Cottonwood Mining District: And it is ordained as follows; to wit: Beginning at the Toll Gate near the entrance to Little Cottonwood Canyon running south to the summit of the mountains, thence easterly along the summit, to the center of divide, to near Big Cottonwood and Little Cottonwood Canyons; thence northerly along the summit to the center of the mountain on the north side of the canyon; thence westerly along the summit to a point due north of Toll Gate; thence southerly to point of beginning.
- Art. 2. There shall be an officer known and distinct to be called the Recorder who shall be elected on the third Monday in August by the miners of the district at their annual meeting.
- Art. 3. The Recorder shall procure and keep a substantially bound book to be called the "Book of Location", in which he shall record and note all location claims whether for mining or other purposes connected therewith.
- Art. 4. He shall carefully keep and preserve all original papers filed with him for record and deliver them upon proper demand to the person or persons entitled to receive the same, and faithfully do and perform all other acts and duties required.

Figure 4. Facsimile of page one of the by-laws of the Little Cottonwood Mining District, June 2, 1870 (Land Office, Salt Lake City).

Meanwhile, back in the Wasatch Mountains, the reaction to the threatened loss of capital resulted in a "do-it-yourself" feeling among many of those involved.

Let capital pass by our door, Little Cottonwood miners to explore:  
With powder and drill, we can open those hills, and dig out our  
own precious ore.<sup>47</sup>

The center of the Little Cottonwood Mining District was located near the head of the canyon about nine miles from the mouth. Because of the altitude, (about 8,600 feet) the region was called Alta.<sup>48</sup>

Within the district the most promising regions were called hills and usually named after the most prominent mine located upon it. Starting below Alta and circling around it, beginning on the north slope, the hills were called: Snow Slide, Frederick, Emma, Davenport, Patsey Marley, Emerald or Wellington, Peruvian or Lexington. The highest concentration of productive mines were located on the Emma and Davenport Hills. The hills and their mines are further illustrated in Table 1.

The first claim was located in the district in August of 1865.<sup>49</sup> By 1873 the number of claims had risen to about 2,100.<sup>50</sup>

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<sup>47</sup>Ibid., November 1, 1873. This song was composed by Mrs. W. E. Wallace, to the air of "Evergreen Shore."

<sup>48</sup>Leigh, p. 1. The word "alta" is of Spanish origin and means upper or high.

<sup>49</sup>Murphy, p. 22.

<sup>50</sup>Utah Mining Gazette (Salt Lake City), August 30, 1873.

TABLE 1  
 PROMINENT MINES OF THE DISTRICT<sup>a</sup>

<u>Emma Hill</u>	<u>Peruvian Hill</u> <sup>b</sup>
Emma	Oxford
Savage	Geneva
Montezuema	Daisy
North Star	Atlanta
Monitor and Magnet	
Illinois Tunnel	<u>Frederic Hill</u>
Vallejo or Southstar	
Flagstaff	Frederic
Last Chance	Crown Prince
<u>Davenport</u>	<u>Wellington Hill</u>
Davenport	Wellington
Matilda	
Grizzley	
City Rocks	

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<sup>a</sup>Utah Mining Gazette (Salt Lake City), August 30, 1873. There was little development on the Snow Slide or Patsey Marley Hills.

<sup>b</sup>It seems probable that Peruvian Hill took its name from Peruvian Bitters, a popular beverage among Alta miners. Interview with Bob Woolley, proprietor, Beehive Antiques, Salt Lake City, June 13, 1966.

Until 1869, the only deeds given to claims in the district were under district by-laws. In 1869, the land office was opened in Salt Lake City and the first title to a mining claim in the district was granted on August 24, 1871, to Charles Smith. The patent issued to Mr. Smith was for the claims upon which was located the Emma Mine.<sup>51</sup> The last date of

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<sup>51</sup>Land Office, "Survey for U.S. Patent, Vol. 1, Lot No. 37. p. 64."

issuance of a patent for a mineral claim in the district was in 1895.<sup>52</sup>

### Technique of mining

The first mines were nothing more than holes dug in the floor of the canyon or tunnels carved into the sides of the mountains. Rock and ore were taken out in wheelbarrows or dragged out in cowhides. As the excavations progressed deeper into the earth, the prospect pits became mines. With the deeper penetration into the earth came the necessity of using wooden timbers to support the roofs of the tunnels. From the earliest development of the mines, the miners were in a position to receive and put to use many of the technical innovations from the Comstock region in Nevada. By 1873, Comstock "square set" timbering was in common usage in the Alta mines.<sup>53</sup>

In some instances, the ore was soft enough to be removed by pick and shovel. As a general rule, however, the ore had to be broken loose from the rock through the use of blasting powder (sometimes called gunpowder).<sup>54</sup> To prepare a blasting charge, holes were drilled into the rock face and filled with blasting powder and then ignited by a fuse. Much of the rock drilling was done with the use of hand held drills. By 1875,

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<sup>52</sup>Ibid., p. 71.

<sup>53</sup>Raymond, Mineral Resources 1873, p. 73.

<sup>54</sup>Ibid.

Burleigh compressed air drills had replaced hand drilling in many of the mines.<sup>55</sup> Illumination in the mines was brought about through the use of tallow drip candles.<sup>56</sup>

During the first half of the decade of the 1870's, steam power was introduced in the more productive mines. Steam engines were set up to drive hoists that brought ore, men and equipment up from the lower levels of the mine; to run air compressors providing air pressure to ventilate the mines and power the compressed air drills; to power the water pumps that drained the lower workings of the mines.<sup>57</sup>

During the spring months and sometimes well into the summer, the mines could not be worked due to the large amounts of water that accumulated in the lower workings of the mines. The water seepage was attributed to the water from the melting snows.<sup>58</sup> The snowfall during the winter months of each year forced the shutdown of nearly all surface workings. Underground activities continued throughout the winter with ore being stockpiled for shipment in better weather. Some of the producers attempted shipping ore out of the district during the winter time. Sleighs were used to haul the ore down the canyon.<sup>59</sup> The winter snows brought

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<sup>55</sup>Real Estate and Mining Gazette (Salt Lake City), May, 1875.

<sup>56</sup>Cottonwood Observer (Alta City, Utah), July 19, 1873.

<sup>57</sup>Utah Mining Gazette (Salt Lake City), September 6, 1873.

<sup>58</sup>Ibid.

<sup>59</sup>Deseret News (Salt Lake City), January 1, 1873.

the destructive force of avalanches to interfere with mining activities. The accounts are many that indicate the destruction done to the mine buildings and surface works.<sup>60</sup>

The smelting of Little Cottonwood ores was again attempted in the canyon in January of 1871. A Colonel Buell established a smelting works at the mouth of the canyon. This smelter was later taken over by the Flagstaff Mining Company and operated until about 1875.<sup>61</sup>

Other smelters were located in the canyon and ran from 1871 to 1873. The Jones and Pardee works ran from 1871 to 1874 near Tanner's Flat. The Davenport smelter was the largest works in the canyon. It was water powered and at one time had three smokestacks coming out from its furnaces. It ceased operation in 1875.<sup>62</sup>

#### Production of the district

Little Cottonwood Mining District has produced some type of ore, continuously since 1867, through the end of the century. During the decade following the completion of the transcontinental railroad, the highest ten-year production was attained. Within that decade (1871-80), the highest production was between 1871 and 1877.<sup>63</sup> The production of gold,

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<sup>60</sup>Deseret News (Salt Lake City), January 27, 1875.

<sup>61</sup>Calkins et al., p. 73.

<sup>62</sup>Ibid., pp. 73-74.

<sup>63</sup>Butler et al., p. 245.

silver and lead in the decade 1871-80 was worth over \$13,000,000.<sup>64</sup> Throughout this period, the value of silver amounted to about three times that of the other metals.

The ore production to about 1877 was of high grade ores. A government report stated that "the Emma Mine is one of the most remarkable deposits of argentiferous ore ever opened."<sup>65</sup> This deposit left a cavern, after the ore was dug out, large enough to accommodate the Mormon, Salt Lake Temple.<sup>66</sup>

Beginning with the decade of the 1880's, a dullness came upon the district. Production dropped to less than a tenth of what it had been during the previous ten years. The decline continued through the passing of the century. Production for this period is further illustrated in Table 2.

To account for decline in the productivity of the district, many factors have to be taken into consideration. First, legal disputes blocked development on many mining properties. Second, working capital became exhausted and the future prospects of the district weren't encouraging enough to attract new capital into the area. Third, the ore bodies which lay near the surface of the ground became exhausted requiring that the lower levels of the mines be worked. With the extension of the mines into

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<sup>64</sup>Ibid., p. 260.

<sup>65</sup>Raymond, Silver and Gold, p. 132.

<sup>66</sup>Salt Lake Tribune, April 1, 1945.



TABLE 2

MINERAL PRODUCTION OF LITTLE COTTONWOOD MINING DISTRICT 1867-1900<sup>a</sup>

Period	Ore Mined	Gold		Silver		Lead		Total
	(short tons)	Fine Ounces	Value	Fine Ounces	Value	Pounds	Value	Value
1867-70	5,573	59.99	\$ 1,240	703,138	\$ 933,617	6,444,800	\$ 387,048	\$ 1,321,995
1871-80	133,796	3,585.02	74,109	6,259,000	7,876,450	95,201,998	5,450,541	13,400,108
1881-90	22,515	5,426.90	112,184	883,034	927,886	14,784,900	642,998	1,703,067
1891-1900	13,885	7,381.38	156,721	707,731	525,114	8,957,869	323,954	1,005,819

<sup>a</sup>Calculated from: B. S. Butler, G. F. Loughlin, V. C. Heikes, The Ore Deposits of Utah, U.S. Department of the Interior, Geological Survey Professional Paper No. 111 (Washington, D.C.: Government Printing Office, 1920), p. 260. The figures represent the combined production of Big and Little Cottonwood Mining Districts. Statistics have been combined to such an extent that it is impossible to separate the production of the two districts.

deeper levels, the cost of working the mines rose higher than the profits from such activities. Fourth, the prices of lead and silver declined beyond the point from which a profit could be returned.<sup>67</sup>

Congress, in 1873, removed silver dollars from circulation. This event coincided with the large production of silver in the Western states and territories. With the increase in the amount of silver available, and less of it being purchased by the government, the ex post facto cry of the "Crime of '73" arose from Utah and the West.<sup>68</sup>

#### The Period from 1901 to 1966

The low level of activity in the district continued through the turn of the century. During the first quarter of the decade 1901-1910, new life came into the mines, raising the production from \$148,000 in 1903, to \$662,568 in 1907.<sup>69</sup> This second boom in the district was followed by a second decline, lasting from 1908 until 1915. New mines, principally the Cardiff, began producing, being stimulated by demands brought about by the First World War. The production in 1915 jumped to \$898,041 and in 1917 reached the highest level since 1873, with a production of \$1,410,123. The third boom at Alta was followed by a third decline which

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<sup>67</sup>Salt Lake Mining Review, January 15, 1916.

<sup>68</sup>George H. Mayer, The Republican Party, 1854-1964 (New York: Oxford University Press, 1964), pp. 225-27.

<sup>69</sup>Lockerbie, News Bulletin of the Mineralogical Society of Utah, IV, No. 1, 23.

was well under way by the time of the Stock Market crash of 1929. The all-time low production of the district was reached in 1932, when only \$2,120 of ore was mined.<sup>70</sup> Production statistics are shown in Table 3.

The increases in production can be explained by several factors. First, the 1870 mining developments were undertaken by managers whose prime motivation was to show a profit to the stockholders of their companies. In developing the mines along these lines, little or no attention was given to systematic, large scale, exploration for new deposits to replace the ones that were being mined out. In 1904, new ore bodies were discovered and the tunnels and dumps of the old workings were re-worked thus providing a source of profitable-to-mine ore.<sup>71</sup> Second, new technological advances of the twentieth century called for metals that were seldom used in the past. A prime example of this was the fact that copper was discarded in the earlier mining days as valueless. The demand created by the use of electricity caused copper ore to become profitable to mine. From no production of copper in the decade 1891-1900, the production was valued at \$973,033 at the end of the 1901-1910 decade.<sup>72</sup> Third, the advances made in the metal refining and

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<sup>70</sup>Ibid., pp. 22-25.

<sup>71</sup>Salt Lake Mining Review, August 30, 1907.

<sup>72</sup>Letter from D. H. Mullen, Project Coordinator, U.S. Department of the Interior, Bureau of Mines, Mineral Resources Office Area V, Denver, Colorado, June 24, 1966.

TABLE 3

PRODUCTION OF LITTLE COTTONWOOD MINING DISTRICT 1901-1966<sup>a</sup>

Period	Ore mined (short tons)	Gold		Silver		Copper	
		Ounces	Value	Ounces	Value	Pounds	Value
1901-10	104,093	3,461.07	\$71,548	1,583,835	\$ 966,883	6,187,794	\$ 973,033
1911-20	136,405	3,478.79	71,913	2,614,339	2,083,297	5,131,646	1,119,038
1921-30	58,852	1,596.04	32,993	1,165,806	920,853	2,078,554	287,358
1931-40	10,603	1,231.14	40,125	131,270	82,818	177,645	18,046
1941-50	6,110	423.00	14,805	89,519	73,776	277,540	48,750
1951-60	20,480	159.00	5,565	107,131	96,958	203,700	63,778
1961-65	18,871	218.00	7,630	301,153	322,566	864,400	278,151

TABLE 3 -- Continued

Period	Lead		Zinc		Total Value
	Pounds	Value	Pounds	Value	
1901-10	8,826,804	\$ 435,099	. . <sup>b</sup>		\$2,446,563
1911-20	19,090,480	1,213,295	45,714	\$ 4,548	4,492,091
1921-30	16,007,641	1,113,294	11,727	862	2,355,360
1931-40	1,528,029	70,618	116,154	6,104	217,711
1941-50	1,130,100	150,645	160,964	21,890	309,866
1951-60	3,924,600	485,221	2,572,100	320,704	972,226
1961-65	4,611,300	501,721	3,585,900	425,604	1,535,672

<sup>a</sup>Letter from D. H. Mullen, Project Coordinator, U.S. Department of the Interior, Bureau of Mines, Mineral Resources Office Area V. Denver, Colorado, June 24, 1966.

Although in his letter Mr. Mullen states that the production statistics are for the Little Cottonwood Mining District, it appears that the figures also include the production from Big Cottonwood Canyon.

<sup>b</sup>Complete figures are not provided by the Bureau of Mines.

smelting industry made it profitable to mine lower grades of ore. Technological advances also made it possible to work lower levels in the mines at lower costs.<sup>73</sup>

Great changes occurred in the mines themselves. The hills around Alta had turned into a labyrinth of interconnecting tunnels and shafts. It became possible to work newly discovered bodies of ore from the tunnels of unproductive mines. An example of such development was the location of the lost ore body of the famous Emma Mine, which was re-located through the use of core drilling.<sup>74</sup>

Since the turn of the century, the mining companies began consolidating and buying out lesser concerns.<sup>75</sup> The names of many of the companies indicate this trend. The principal mining companies as of 1916 are shown in Table 4.

In general, the ore was shipped to the smelters south of Salt Lake City for processing. By 1919, a narrow gauge railroad operated by the Denver and Rio Grande was located on the bed of the mule drawn tram that operated to the mines during the 1870's.<sup>76</sup> In 1922, the railway was

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<sup>73</sup> Salt Lake Mining Review, August 30, 1907.

<sup>74</sup> J. J. Beeson, Report on the Property of the Emma Silver Mines Company in Little Cottonwood Mining District Alta, Utah (Salt Lake City: Emma Silver Mines Company, 1919), pp. 14-17.

<sup>75</sup> Salt Lake Mining Review, November 30, 1915.

<sup>76</sup> Lockerbie, News Bulletin of the Mineralogical Society of Utah, IV, No. 1, 24.

TABLE 4

PRINCIPAL MINING COMPANIES IN 1916<sup>a</sup>

Alta Consolidated Mines Company	Cardiff Mining Company
Sellis Mining Company	Michigan Utah Mines Company
South Hecla Company	Emma Copper Company
Wasatch Mines Company	Old Emma Mining Company
Albion Mining Company	Peruvian Mining Company
West Toledo Mining Company	Alta Germania Mines Company
Alta Tiger Mining Company	Columbus-Rexal Mines Company

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<sup>a</sup>Compiled from: Salt Lake Mining Review, January 15, 1916; Lockerbie, News Bulletin of the Mineralogical Society of Utah, IV, No. 1, 23.

operated as the Alta Scenic Railway and the operator, George H. Watson, featured tours of the underground workings of the Old Emma Silver Mine.<sup>77</sup>

Since their decline during the late 1920's, the mines have remained, for the most part, inactive, with only a few in a producing condition. During the summer of 1964, the exploration arm of the Kennecott Copper Corporation was "sufficiently encouraged" to continue exploration plans for molybdenum in the mountains west of Alta.<sup>78</sup>

A change in metal prices, development of new processes and the impending demand for metals could mean that Alta some day will have another mining era. That is the hope of present owners and developers.<sup>79</sup>

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<sup>77</sup>LDS Library, "Manuscript History, Alta, Utah papers, Alta Scenic Railway."

<sup>78</sup>Salt Lake Tribune, July 30, 1964.

<sup>79</sup>Ibid., October 3, 1965.



Figure 5. Facsimilie of stock certificate, Alta Merger Mines Company  
Courtesy Utah Historical Society

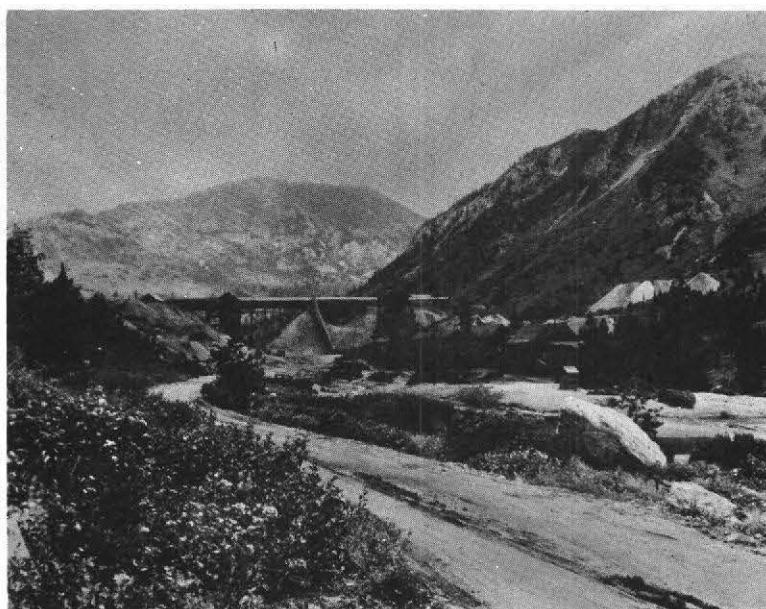


Figure 6. Typical mine workings, Standard Rex Silver Mine, 1937  
Courtesy Utah Historical Society





Figure 7. Famous Emma Hill with Emma Mine in foreground

Courtesy Wasatch National Forest

### CHAPTER III

## ALTA, GRAND OLD LADY OF THE WASATCH<sup>1</sup>

### Early Settlements in The Canyon

By the 1870's, Little Cottonwood Canyon was dotted with small lumbering, mining and quarrying centers. These centers "grew-up" near the stimulating economic activity to which they were subordinate. Most of the settlements consisted of nothing more than a boarding house and a saloon and are hardly deserving of the appellation--settlement.<sup>2</sup> Such settlements as Cheatum, Hogum, Emmaville and Gold City were of little significance, nevertheless, they were called settlements by the early users of the canyon.

The first settlement to truly qualify for the name was Granite (sometimes called Graniteville). Granite was located within the canyon very near to the mouth. Granite owed its existence to the quarrying being undertaken by the Mormon Church in the canyon and moved farther and farther up the canyon as did the quarries. Granite flourished between 1859 and 1899, when quarrying was terminated. During the 1870's, Granite consisted of about fifty buildings, being mostly stores, saloons,

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<sup>1</sup>The chapter heading is borrowed from the title of an article in Kennescope (Salt Lake City), (January, 1961), 14-15.

<sup>2</sup>Real Estate and Mining Gazette (Salt Lake City), July 15, 1875.

boarding houses and cabins.<sup>3</sup>

When the Wasatch and Jordan Valley Railroad reached Granite in 1873, the name was changed to Wasatch and it was known as the Wasatch Station or as just plain Wasatch from that time on.<sup>4</sup> Wasatch was located about one and one-half miles into the canyon and about sixteen miles, by road, from Salt Lake City. It served as a center for teamsters, both of ore and granite; for railroaders; and for quarrymen. Following the completion of the Salt Lake Temple in 1893, quarrying continued at a minimum until 1899. Since the termination of quarrying, Wasatch has served as a canyon resort.<sup>5</sup>

About seven miles farther on up the canyon was a place called Tannersville. Tannersville got its name from a Mr. Tanner who ran the principal lodging establishment. The settlement amounted to little more than a few boarding houses, saloons, and livery stables. During the earliest days of its existence, it was a logging and lumbering center; later on it became a shipping and smelting center. In September of 1872, it was destroyed by fire.<sup>6</sup>

Near the head of the canyon, nine miles from its mouth, was located

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<sup>3</sup>LDS Library, "Granite Ward History."

<sup>4</sup>Ibid.

<sup>5</sup>Ibid.

<sup>6</sup>Works Project Administration, "Inventory of the County Archives of Utah, No. 18, Salt Lake County, (Final Draft)," p. 37. (Typescript, in the files of the State Historical Society.)

another settlement deserving of the name. Central City existed primarily as a lumber milling center until about 1866, when a smelting works was erected nearby.<sup>7</sup> Named for its central location amid the mines of the district, Central City was built on the side of a steep hill.<sup>8</sup> The buildings in Central City consisted mostly of log cabins and rough frame structures. The 1870 census lists a total of two hundred and sixteen inhabitants in Little Cottonwood Canyon.<sup>9</sup> A good many of them must have lived in Central City and on the hillsides surrounding it. A post office was established as the Central City Post Office on January 21, 1871.<sup>10</sup> Until the fall of that same year Central City was the main business center for the mining district.

#### Alta Dominates the Settlements in the District

In the fall of 1871, a settlement directly to the east of Central City swallowed up the latter settlement and reigned supreme as the most

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<sup>7</sup>Jackson, Utah Historical Quarterly, XXIII, No. 4, 340.

<sup>8</sup>Utah Mining Gazette (Salt Lake City), August 30, 1873.

<sup>9</sup>U.S. Bureau of the Census, "Ninth Census of the United States: 1870, Population, Utah Territory, Salt Lake County, Little Cottonwood Canyon," I, (Manuscript, on Microfilm in the Library of Utah State University.)

<sup>10</sup>Letter from Jane F. Smith, Chief, Social and Economic Branch, Office of Civil Archives, General Services Administration, National Archives and Records Service, Washington, D.C., October 4, 1965.

prominent community in the canyon.<sup>11</sup> Alta City was located in the broadest and flatest part of the canyon, some eight hundred and fifty yards due east of Central City.

In 1873, two varied accounts describe Alta City in somewhat different terms. The first account stated that Alta City was:

a small mining camp that is dignified by this high-sounding name [city], and a mining camp anywhere in this region is simply a collection of rough cabins and drinking "saloons."<sup>12</sup>

The second account described Alta as being:

a young town, not yet incorporated, built up within the last two years from four or five houses, until today it numbers 180 houses, of various sizes and styles, from the rude slab shanty to the two story hotel, of good and handsome finish.<sup>13</sup>

Alta was not incorporated in 1873, or at any time subsequently.<sup>14</sup> As Alta replaced Central City as the business center of the mining district, a journalist was prompted to forecast that:

Alta will be unquestionably a permanent mining town. It is impossible for it to fail now, as there are around it for miles mining claims which will attract men of capital, and in the development of these claims thousands will become wealthy, and Alta will increase in importance and stability.<sup>15</sup>

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<sup>11</sup>Utah Mining Journal (Salt Lake City), July 10, 1872.

<sup>12</sup>Codman, p. 112.

<sup>13</sup>Utah Mining Gazette (Salt Lake City), August 30, 1873.

<sup>14</sup>A search of Territorial, State and County records revealed that at no time did Alta operate under a charter granted by any level of government. The term "city" used in conjunction with Alta, was in keeping with the practice of the times throughout western mining camps.

<sup>15</sup>Utah Mining Gazette (Salt Lake City), August 30, 1873.

Little did the journalist know of the impending decline of the mines of the district and of the scarcity of men with capital. As he was writing, Alta was experiencing her greatest boom, and henceforth would only continue to decline, coming to life from time to time with the revival of activity in the mines, but never again to reach the peak of development and activity established in 1873. The continuum of Alta's existence may be further illustrated by the population comparisons contained in Table 5.

By 1880, the mines were declining and so was the number of inhabitants at Alta and in the district. A level of about three hundred inhabitants is recorded at various times from 1880 through 1966. During the second and third revivals of mining (1904 and 1915), the population of the mining district was housed in bunk houses built and maintained by each separate mining company near the center of their operation. The old town of Alta was never extensively rebuilt after its decline in the last quarter of the Nineteenth Century.<sup>16</sup>

At its peak the buildings at Alta numbered about one hundred and eighty. The first building constructed at the townsite of Alta was a steam sawmill and an attached boarding house, erected in 1868, by Bishop Samuel A. Woolley and Nathan Davis of Salt Lake City. The construction of the sawmill and boarding house was followed the next year by the construction of a log cabin.<sup>17</sup>

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<sup>16</sup>Salt Lake Mining Review, August 30, 1907.

<sup>17</sup>Utah Mining Gazette (Salt Lake City), August 30, 1873.

TABLE 5

POPULATION OF ALTA CITY AND SURROUNDING AREA<sup>a</sup>

Year	No. of Inhabitants
1870 . . . . .	216
1872 . . . . .	1,000-8,000 <sup>b</sup>
1873 . . . . .	800-1,500
1874 . . . . .	600-1,300
1878 . . . . .	600
1880 . . . . .	300
1903 . . . . .	300
1908 . . . . .	300
1912 . . . . .	580
1916 . . . . .	500
1920 . . . . .	300
1922 . . . . .	200

<sup>a</sup>Compiled from: Western Mineral Survey (Salt Lake City), April 1, 1930; U.S. Bureau of the Census, 1870, 1880; Utah Mining Journal (Salt Lake City), July 22, 1872; Utah Works Project Administration, Dale Morgan et al. (ed.), Utah, A Guide to the State (New York: Hastings House, 1941), 200, 286; Utah State Gazetteer and Business Directory 1903, 1909, 1912, 1916, 1920, 1922; H. L. H. Culmer (ed.), Utah Directory and Gazetteer 1878-79 (Salt Lake City: H. L. A. Culmer and Co., 1879), p. 183; Sloan, Gazetteer, 1874, p. 125.

<sup>b</sup>Estimates of the population vary due to the fact that during the winter many inhabitants left the mountains for safer and milder climates. The peak of the mining district was reached somewhere between 1872 and 1873 and the temporary summer population may have reached 5,000 to 8,000.

In the region of Alta, on the hillsides and away from the level of the canyon floor, a few scattered buildings were constructed near mines and prospect pits prior to the construction of the first buildings in the town-site. Since the area abounded at that time with timber logs, they were plentiful for the construction of cabins. At one time, probably during the



1870's, six sawmills operated at Alta to furnish lumber for the buildings and mines.<sup>18</sup> A great many of the early housing facilities at Alta consisted of nothing more than dugouts, lean-to's, pyramid shaped miner's tents, and rag shanties.<sup>19</sup>

### The Townsite

The Alta townsite was platted and recorded with the Salt Lake County Recorder on July 23, 1873 (see Figure 8). The townsite plat comprised thirty, rectangular shaped blocks, each containing twenty-five lots measuring seventy-five by twenty-five feet.<sup>20</sup> The streets bearing names ran up and down the canyon, while the streets bearing numbers ran across the canyon. A map of Alta City in 1873, shows the townsite as being somewhat more extensive than indicated in the town plat. The map in addition to showing the platted streets, shows Emma Street to the north and to the south Hill, Pine and High Streets. The map shows Central City as comprising the area between Seventh and Tenth West Streets, between

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<sup>18</sup>Lockerbie, News Bulletin of the Mineralogical Society of Utah, IV, No. 1, 19.

<sup>19</sup>Carter Collection of Early Utah Photographs, No's C338-40. (The collection is in the files of the LDS Church Information Agency, but does not belong to the Church.) Rag shanties are structures with wooden floors and walls, to a height of about four feet, and a wooden frame with a tent or canvas covering the roof and remaining sides.

<sup>20</sup>Salt Lake County Recorder's Office, "County Book A-47, Plat of Alta City, Utah, 3 south-3 east."





High and Walker Streets.<sup>21</sup>

The first settlers at Alta neglected to obtain patents from the land office for the land upon which they built their cabins and business houses. They held "possession rights" only.<sup>22</sup> A Mr. Nalder obtained the title to the land where the town was situated. The negotiations for it took place between 1871 and 1873. The land was purchased by Nalder from Amanda Brown, who obtained the land through the exchange of Indian script.<sup>23</sup>

The Salt Lake City firm of Walker Brothers, which was active in developing mines in the district, aided Nalder in the purchase of the one hundred and sixty acres from Amanda Brown. Walker Brothers subsequently formed a town development company and bought out Nalder's interest. The Walker Brothers then proceeded to survey the town, and attempt to sell lots to the "squatters" already settled on the land.<sup>24</sup> From seventy-five to two hundred dollars was asked for each lot.<sup>25</sup> Some of the citizens met in a meeting to oppose the "takeover" of "their land" by the Walker Brothers. They seemed willing to "pay a small fee to get a title to the lots," but they did not stick together as a group and force the

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<sup>21</sup>B. A. M. Froiseth, Froiseth's Map of Little Cottonwood Mining District, Utah (Salt Lake City: By the author, 1873).

<sup>22</sup>Cottonwood Observer (Alta, Utah), July 19, 1873.

<sup>23</sup>Land Office, "Patent Histories, Patent No. 5950, January 3, 1873; Utah Mining Gazette (Salt Lake City), August 30, 1873.

<sup>24</sup>Utah Mining Gazette (Salt Lake City), August 30, 1873.

<sup>25</sup>Cottonwood Observer (Alta, Utah), July 19, 1873.

issue of "squatter's rights." Instead each person chose to settle with the company or continue the fight alone.<sup>26</sup>

About the same time as the uncontested patent was obtained by Walker Brothers, the mines started to decline and many of the "squatters" simply abandoned whatever holdings they might have had and withdrew from the Territory. The controversy over land ownership held back the development of a more prosperous business center in the mining district.

#### Alta's Business Center

Alta was a one street town. That one street was Walker Street between Second and Third West Streets. In this area of town, the greatest concentration of buildings was located. Other buildings were scattered here and there on the hillsides of both ridges surrounding the canyon. Alta's business center served the mining district and saved the miners the twenty-eight mile trip down the canyon to Salt Lake City in order to obtain supplies.

The buildings ranged from cabins to two story hotels. Most of the buildings were of frame construction. Board walks faced many of the more important stores (see Figure 9). Some of the buildings were built with basements underneath them. This construction was the exception and not the rule.

Alta offered most of the comforts of settlements much larger in size.

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<sup>26</sup>Utah Mining Gazette (Salt Lake City), August 30, 1873.



Figure 9. Business district and main street at Alta in 1873. View of Walker Street between 2nd and 3rd West. Mt. Superior in background.

Courtesy Utah Historical Society

The basic establishments necessary for the sustenance of mining life were in evidence about the town. Listed in Table 6 below, are some of the important buildings and businesses in Alta's business center between the years 1870 and 1880.

TABLE 6  
PRINCIPAL BUILDINGS AND BUSINESS  
AT ALTA CITY<sup>a</sup>

Use of Building	Number of
Hotel . . . . .	4
Freighters . . . . .	2
Saloons . . . . .	26
Restaurants . . . . .	7
Sawmills . . . . .	6
General Merchandise . . . . .	3
Drug Stores . . . . .	2
Confectionary and Fruit . . . . .	2
Court House . . . . .	1
School . . . . .	1

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<sup>a</sup>Compiled from: U.S. Bureau of the Census, 1870 and 1880; Cottonwood Observer, July 16, 19, 26, 1873; Utah Mining Gazette, July 22, August 20, 1872, August 30, 1873; Sloan, Gazetteer of Utah 1874, pp. 78-80; Culmer, Utah Directory 1879-80, pp. 183-85; Kate B. Carter (ed.), The Story of Mining in Utah, Daughters of Utah Pioneers, Lesson for October, 1963, p. 99. In some cases, various other business establishments were also housed in the above listed buildings.

To accommodate the hearty drinking appetites of the miners, twenty-six saloons operated in Alta during the 1870's.<sup>27</sup> During that same period

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<sup>27</sup>Lockerbie, News Bulletin of the Mineralogical Society of Utah, IV, No. 1, 22.

of time, one hundred and ten men were killed in bar room disputes. Most of the deceased were buried in the "boots on" cemetery at the foot of Rustler Mountain, southwest of town. The two most famous saloons were the Bucket of Blood and the Gold Miner's Daughter.<sup>28</sup> Other off-hours activities at Alta were conducted in shooting galleries, billiard halls, and concert halls that adjoined many of the saloons.<sup>29</sup>

Alta had two newspapers in 1873. The Alta Daily Independent was first issued on May 3. Its success was short lived, however, and it soon ceased publication. A more successful paper was the Cottonwood Observer, published through most of 1873 (see Figure 10).<sup>30</sup>

### The People

About two-thirds of the inhabitants living in Little Cottonwood Canyon in 1880 were miners. Nearly one-third of the total population was between the years of twenty-six and thirty-five in age. About one-sixth of the population were women and most of them lived at home and did nothing more than keep house. Out of a population of three hundred persons, nearly one-half was foreign born and the majority of those born

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<sup>28</sup> Kinnescope, (January, 1961), 16.

<sup>29</sup> Cottonwood Observer (Alta, Utah), July 19, 1873.

<sup>30</sup> J. Cecil Alter, Early Utah Journalism (Salt Lake City: Utah Historical Society, 1938), p. 17.





outside of the United States were from the British Isles.<sup>31</sup>

An 1873 etching depicting miners at Alta shows them wearing knee high boots and baggy trousers. Each wore a soft, wide brimmed hat. As was the custom of the times, many varieties of beards and mustaches were worn by the miners.<sup>32</sup>

The activities engaged in by the population of Alta and the surrounding mining district is indicative of the level of activity reached by the district in the 1870's. A further breakdown of occupations is contained in Table 7.

#### Life at Alta

The mines of the district were located within four miles of Alta. The miners stayed near their mines coming to town for supplies and for entertainment. Those people living in the town were usually businessmen and the newly-arrived.

Alta was not conducive to growing crops. In 1870, a Mr. Holden planted about a half acre ground in radishes, lettuce, beets, cabbage, onions and potatoes. The seeds came up but never matured nor ripened.

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<sup>31</sup>U.S. Bureau of the Census, "Tenth Census of the United States: 1880, Population, Utah Territory, Salt Lake County, Little Cottonwood Precinct," II, 20-25. (Manuscript, on microfilm at Utah State University Library.)

<sup>32</sup>Codman, p. 115.



TABLE 7  
OCCUPATIONS AT ALTA CITY 1870-1880<sup>a</sup>

Occupation	
miner	domestic servant
housekeeper	saloon keeper
boot black	railroad conductor
assayer	freighter
doctor	laborer
shoemaker	hotel keeper
carpenter	dry goods clerk
druggist	mine superintendent
lawyer	logger
brewer	laundryman
preacher	lumberman
photographer	restaurant keeper
notary public	teamster
printer	telegrapher
brick mason	postmaster
engineer	prostitute
butcher	dance hall entertainer
artist	mechanic
organ grinder	newspaper reporter
baker	stationer
barber	jailer
jeweler	school teacher
contractor	bookkeeper
justice of the peace	mineral surveyor
constable	musician
mining recorder	mining foreman
cook	

<sup>a</sup>Compiled from: U.S. Bureau of the Census, 1870 and 1880; Cottonwood Observer, July 16, 19, 26, 1873; Utah Mining Gazette, July 22, August 20, 1872, August 30, 1873; Sloan, Gazetteer of Utah 1874, pp. 78-80; Culmer, Utah Directory 1879-80, pp. 183-85; Kate B. Carter (ed.), The Story of Mining in Utah, Daughters of Utah Pioneers, Lesson for October, 1963, p. 99. In some cases, various occupations were engaged in by the same person.

Mr. Holden didn't "get a quart from the whole crop."<sup>33</sup>

It was a struggle merely to maintain life at Alta. All goods used in the district had to be imported from Salt Lake City or from the farms in the valley below Little Cottonwood Canyon. In addition to the peril that existed for those who spent considerable time in the bars, the wintertime brought an even more deadly menace to the district. Deep snows covered the town to a depth of forty feet. The inhabitants lived under the white layer like moles. Only the stove pipes were left sticking out from the surface of the snow. Stairs cut into the snow lead to the city below and numerous tunnels connected many of the buildings. The crust on top of the snow became so hard that horses could walk over it hauling loads that were dragged behind in rawhide bags.<sup>34</sup>

To those who ventured out of their homes during the winter, special precaution had to be exercised to avoid becoming blinded by the reflection of the sun from snow surface. Veils and tinted glass goggles were improvised to afford some protection.<sup>35</sup>

The sawmills operating at Alta required vast amounts of logs. Trees were felled in such great number that the slopes were practically denuded

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<sup>33</sup>Utah Mining Gazette (Salt Lake City), August 30, 1873.

<sup>34</sup>Jim Wardner, Jim Wardner of Wardner, Idaho (New York: The Anglo-American Publishing Co., 1900), p. 26.

<sup>35</sup>George A. Lawrence, Silverland (London: Chapman and Hall, 1873), p. 67.

of timber by 1884 (compare Figures 11 and 12). With the removal of the trees, there was little to hold back the accumulated snows.

During the winter of 1873-74, a disastrous snow slide swept down from the mountain and destroyed about one-half of the town. Sixty persons reportedly lost their lives in the main blocks of the town. A fire followed the avalanche, and between the two destroyers, the town was almost completely wiped out.<sup>36</sup> Other avalanches and fires swept through the town in following years. In 1885, a slide swept down from Rustler Mountain partially destroying the town. Following this slide, the town was never extensively rebuilt. During the years of decline in the mines, the winter snows caved in and swept away most of the remaining structures at Alta. With no activities in the district, there was no one to keep the town up and it finally died a natural death.

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<sup>36</sup>Western Minerals Survey (Salt Lake City), June 30, 1939; Salt Lake Tribune April 1, 1945.



Figure 11. Looking south toward Rustler Mountain, Alta's business district in the foreground, 1873. Note the trees on the hill.

Courtesy Utah Historical Society



Figure 12. Approximately same view as in Figure 11, showing effect of a snow avalanche, 1885. Note the lack of trees on the hill.

Courtesy Utah Historical Society

## CHAPTER IV

### ALTA, A SKI RESORT 1937-1966

#### Early Skiing

Snow and its unwanted by-product--avalanche--was the curse of Alta "City" and the mines of the Little Cottonwood mining district for nearly three-quarters of a century. In light of its destructive history, it is quite surprising that snow, and lots of it, was the spark that ignited the fourth "boom" at Alta.

The average annual snowfall at Alta is over 450 inches per winter.<sup>1</sup> This snowfall has provided a large portion of the water used in the Salt Lake Valley throughout the past 119 years. During much of this time, snow was not considered a recreational resource and was not exploited in its own right.

Nevertheless, skiing as a sport was the "magic" that transformed snow from a curse to a blessing. Skiing, as a means of transportation, can be traced to the 1870 period of Alta's history. The mailman made deliveries to Alta "City" using some form of ski. Scandinavians seem to have been the first to adapt skiing to conditions in Little Cottonwood Canyon. In 1880, about one-twelfth of the population of Alta City and the

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<sup>1</sup>U.S. Department of Agriculture, Forest Service, Wasatch National Forest, Alta Avalanche Center, "Cumulative Snow and Avalanche Data."

mining district were of Scandinavian birth.<sup>2</sup> The Scandinavians brought from the old country memories of how they used to get about in deep snows.

As early as 1873, there is mention of snowshoes being used at Alta.<sup>3</sup> Skiing had progressed to such a point by 1884, that a race was held on the slopes near Alta. Alberta Kaugen reigned as "schuss king" indicating that Scandinavians and skiing go hand-in-hand.<sup>4</sup>

During the early 1890's the skis used at Alta were described as being:

Norwegian snow-shoes--skees [sic] --fourteen feet long and six inches wide.<sup>5</sup>

The "skees" were not securely fastened to the feet as is the practice today. It was felt that it "would not be safe."<sup>6</sup> Another type of ski used at Alta was described as being short and stubby and turned up on both ends.

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<sup>2</sup>U.S. Bureau of the Census, "Tenth Census, Population, 1880," II, 20-25.

<sup>3</sup>Utah Mining Journal (Salt Lake City), January 11, 1873. It is not clear whether the reference was to webbed snowshoes or to wooden skis. The terms were used somewhat interchangeably during the early development of skiing in the United States.

<sup>4</sup>Salt Lake City Public Library, Utah Room, Clippings Folder, "Skis and Skiing." A schuss is a type of downhill skiing maneuver that involves going directly downhill for a distance.

<sup>5</sup>Florence A. Merriam, My Summer in a Mormon Village (New York: Houghton, Mifflin and Company, 1894), p. 151.

<sup>6</sup>Ibid.



Early Alta ski technique was not a refined procedure. Most of the ski equipment was made by the user himself.<sup>7</sup> The clothing was much the same as that worn by miners during the winter months. Ski poles, as we understand them today, were not used. Instead, a long pole, cut from bush growing along the sides of the creek, was used on the uphill side of the skier. The skier would then "row" up and down the hill. The pole also served to maintain balance.<sup>8</sup>

While early reports on skiing at Alta do not reveal that everyone commonly practiced skiing as a sport, they do indicate that it was participated in by at least some of the inhabitants.

#### The Development of Modern Skiing at Alta

On the national scene, skiing was gaining in popularity as a sport. The National Ski Association was formed in 1904, and regional organizations have continued to affiliate with the national organization ever since. Norwegians founded the National Ski Association and were effective in making skiing more popular in America.<sup>9</sup> In Utah, one of the first organized skiing groups was the Norwegian Young Folks Society, which was

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<sup>7</sup>Robert F. Marvin, "Alta-1916," (Salt Lake County, Jordan School District), p. 1.

<sup>8</sup>Ibid.

<sup>9</sup>Carl Wittke, We Who Built America (rev. ed. Cleveland: The Press of Western Reserve University, 1964), p. 285.



formed in 1915 and sponsored ski excursions to various areas of the State.<sup>10</sup>

Coincidental with the decline of mining at Alta, the population declined to an almost non-existent level. During the depression of the 1930's, the camp had but few year-'round inhabitants. One intrepid soul, George H. Watson, President of Alta United Mines Company, continued to live and work at Alta. He always referred to the area as "Romatic Alta." One year, as the only inhabitant of Alta, he elected himself "Mayor," by a majority vote of one. The "Mayor" learned to "get about" during the winter on skis. He regarded skiing as a "tough and ornery system of transportation."<sup>11</sup>

While reading a magazine during a lonely winter, the "Mayor" learned that skiing was becoming quite a popular sport throughout the nation. This discovery prompted him to investigate the matter further. He wrote 200 letters to various ski resorts throughout the United States and Europe. The information he received convinced him that his cabin at Alta was situated in the middle of a potential ski center.<sup>12</sup>

Although originally a miner and a mining promoter, George Watson, then turned his attentions toward promoting skiing at Alta. Other people

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<sup>10</sup>University of Utah Library, Utah Room, Clippings Folder, "Skis and Skiing."

<sup>11</sup>Jim Marshall, "His Hard-Rock Honor," Collier's, (October 18, 1947), 116.

<sup>12</sup>Ibid., pp. 115-16.

had ideas and interests similar to those of "Mayor" Watson. Interest in skiing, by this time, had risen to such a height that there were small circles of enthusiasts penetrating the Wasatch canyons in pursuit of good ski terrain and snow conditions.

In the meantime, in 1936, the first two chair lifts in North America were installed at Sun Valley, Idaho.<sup>13</sup> Skiing was on its way to becoming a thriving business, in addition to being a popular sport. Railroad interests saw the possibilities of boosting their passenger business through the development of skiing. The Union Pacific Railroad was active in the development of Sun Valley. Chambers of Commerce also realized the economic potential that lay in the promotion of skiing.<sup>14</sup>

The opening of Sun Valley acted as the "spark plug" that got things going at Alta. State, county, and city officials, the Salt Lake Chamber of Commerce, and the United States Forest Service observed the Idaho development and decided to create the same thing near Salt Lake City.<sup>15</sup> At the time Sun Valley opened, the Forest Service was in the process of developing all-weather roads into various Utah canyons.<sup>16</sup> The Salt Lake

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<sup>13</sup>Ron Guzik, "First Facts First," 1966 Annual Ski Magazine Buyer's Guide, 136.

<sup>14</sup>Interview with Alf Engen, Director of the Engen Ski School, Alta, Utah, May 26, 1966.

<sup>15</sup>Interview with William J. O'Connor, former President of the Salt Lake Winter Sports Association, June 20, 1966.

<sup>16</sup>Interview with Felix Koziol, retired Supervisor of the Wasatch National Forest, June 27, 1966.

County Commission also was cooperating with other agencies in the development of better canyon roads. Civilian Conservation Corps labor developed summer recreational facilities and it was felt that winter recreation could be developed in the same area.<sup>17</sup>

### First Steps at Alta

During the summer of 1937, the first tangible step was taken towards reviving Alta. On May 6, 1937, George H. Watson, acting in the capacity of President of Alta United Mines Company, deeded surface rights to 700 acres of Alta land to the federal government. James E. Gurr, Supervisor of the Wasatch National Forest, received the land in behalf of the government.<sup>18</sup> The American Smelting and Refining Company, through its subsidiary Alta Mining and Development Company, meanwhile had acquired the old Alta townsite. Under the direction of William J. O'Connor of American Smelting and Refining, the surface rights to the townsite were deeded to the government. The Wasatch Mines Company and others contributed other parcels of property, bringing the total land donation to the government for the development of this major ski area, to about 1,600 acres.<sup>19</sup>

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<sup>17</sup>Engen, May 26, 1966.

<sup>18</sup>Salt Lake Tribune, May 6, 1937.

<sup>19</sup>Wasatch National Forest, Salt Lake City, "Status Map Tabular Record."

As previously mentioned, the land acquisition by the Forest Service was for surface rights only. The mining companies retained all sub-surface mineral and water rights, as well as rights of ingress and egress necessary to conduct mining operations.<sup>20</sup> When the Forest Service assumed control, it withdrew all the land under its jurisdiction in the area of the proposed ski center from mineral entry. This meant that the area would be restricted from further mineral development (outside of the rights retained by the donating companies.)<sup>21</sup>

In connection with the donation of lands to the government, one item is of particular interest. The acquisition of lands and designation of Alta as a winter recreation site, was marked by a cooperative spirit. Many private citizens, civic organizations, companies and governmental agencies were involved. The accomplishment was brought about on an "if you will--I will" basis.<sup>22</sup> Understandings were worked out before any action was taken. It appears that all the land would not have been donated without a commitment from the Forest Service of intent to develop it as a ski resort.

Between 1934-36, the road up Little Cottonwood Canyon was relocated from its location in the bottom of the canyon near the stream, to the

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<sup>20</sup>Ibid.

<sup>21</sup>Koziol, June 27, 1966.

<sup>22</sup>Ibid.

right-of-way of the abandoned railway that had formerly served Alta. The right-of-way had been cut into the north slope of the canyon. The rails were scrapped and the right-of-way improved as a motor road. The new road was developed through the cooperation between mining interests and governmental agencies.<sup>23</sup>

### The First Ski Lift

With the development of Alta as a winter resort, the way was opened for the establishment of facilities to further encourage skiing. The first need was for a conveyance to take skiers up the mountain. Although cross-country skiing already was popular in the area, it is very strenuous and physically limits the type of person who can participate.<sup>24</sup>

In the fall of 1938, a group of Salt Lake City businessmen who were avid skiers, got together and formed the Alta Winter Sports Association (later known as the Salt Lake City Winter Sports Association). The members were prominent in Salt Lake City Business circles. The Association initially included: Percy Kittle, Stewart Cosgriff, Marty Wicks, Paul Keyser and William J. O'Connor. The Sun Valley influence may again be seen by the fact that the latter two members were in Sun Valley for its opening. Mr. O'Connor, who with "Mayor" Watson had been active in obtaining land for donation to the Forest Service, served as the first

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<sup>23</sup>Calkins et al., p. 6.

<sup>24</sup>Engen, May 26, 1966.

President of the Alta Winter Sports Association. In recalling the initial stages in the development of Alta, Mr. O'Connor credits George Watson, the "Mayor" of Alta, with being the "prime mover."<sup>25</sup>

In order to provide the necessary operating capital, the Association raised \$10,000 through the sale, at \$25 per share, of stock. In the fall of 1938, a permit to construct and operate a single-chair lift up Collin's Gulch was obtained by the Association from the Forest Service. Actual construction of the ski lift (the first in Utah) was facilitated by the purchase for \$1,500 of an abandoned, aerial mining tramway from the Van Evera Brothers, who in addition to being mining men, were also skiers. The tram formerly had operated between Tanner's Flat and the Michigan Utah Consolidated Mines Company property in Grizzley Gulch.<sup>26</sup>

After the purchase of the tram, an additional \$3,000 was spent in re-locating and converting the machinery to a ski lift.<sup>27</sup> Wooden towers were erected along the side of Collin's Gulch, arms and shives installed atop them, and the cable set in place. Connections were run from power lines to provide electricity to run the lift. To varying degrees, the old tram has operated as a ski lift each season since its opening.<sup>28</sup>

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<sup>25</sup>O'Connor, June 20, 1966.

<sup>26</sup>Ibid.

<sup>27</sup>Interview with S. J. Quinney, President and Chairman of the Board of Directors, Salt Lake City Winter Sports Association, June 6, 1966.

<sup>28</sup>Interviews with C. B. Morton, Vice President and General Manager, Salt Lake City Winter Sports Association, throughout the winter 1965-66.

The Collins lift (named after the gulch in which it operates), enabled skiers to travel 2,740 linear feet up the mountain while rising 750 vertical feet above the canyon floor.<sup>29</sup> The six-minute ride cost 25 cents per trip, or all-day for \$1.50.<sup>30</sup> Instead of spending two hours wearing themselves out climbing uphill through freshly-fallen snow, skiers had hundreds of acres of terrain available for a nominal fee and wait in the lift line.

Meanwhile, the Forest Service, in the fall of 1938, closed off the entrance to several hazardous, abandoned mines and leveled several mine dumps that would have interfered with skiing.<sup>31</sup>

### The White Death

With the lure of skiing attracting thousands of enthusiasts to Alta each winter, the avalanche danger again became critical. Early-day loggers, operating in the canyon during the winter, probably were the first to experience the sting of nature's destructive avalanche force. The "white death" that leveled its buildings and killed its inhabitants is no stranger to Alta. As early as 1871, deaths were reported from snow slides in the Alta area.<sup>32</sup> At that time the only escape from the menace

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<sup>29</sup>Ibid.

<sup>30</sup>Minutes of the Meeting of the Board of Directors, Salt Lake City Winter Sports Association, January 30, 1939 (in the files of the President).

<sup>31</sup>Quinney, June 6, 1966.

<sup>32</sup>Deseret News (Salt Lake City), December 6, 1871.

lay in evacuating the high mountain regions and moving to the valley until the winter storms had passed. The old adage "either stay out of the mountains or take your chances" was not a good enough solution to the problem, only a hazardous choice.<sup>33</sup>

The exact number of snow slide victims is unknown. In attempting to assess the death toll, several handicaps are encountered. Although the best records are newspaper accounts, they are of questionable accuracy since the time, area of occurrence and circumstances are not well defined. Sometimes a paper recounted a disaster, naming as victims persons who at a later time were found alive and well.

In 1915, a newspaper account placed the cumulative death toll at about 500 victims.<sup>34</sup> This estimate seems too high. This writer, having read accounts in various newspapers published between 1865 and 1915, is inclined to place the number somewhere between 225 and 250 for the entire canyon.<sup>35</sup>

The Forest Service in accepting donations of land for the resort, assumed responsibility for their administration. One of the problems thus inherited was the avalanche hazard that threatened to wipe skiing out

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<sup>33</sup>Howard E. Jackson, "They Bust Avalanches Wide Open," Natural History, LXIV (February, 1955), 69.

<sup>34</sup>Salt Lake Tribune, February 23, 1915.

<sup>35</sup>Deseret News (Salt Lake City); Salt Lake Tribune, Salt Lake Telegram; Utah Mining Journal (Salt Lake City); Utah Mining Gazette (Salt Lake City); Cottonwood Observer (Alta, Utah); Salt Lake Mining Review.



before it became established. The Forest Service was vitally concerned with the avalanche threat at Alta since it faced a similar problem in other developing ski centers. Eighty per cent of the ski areas in the Western United States are located on Forest Service land.<sup>36</sup> The Forest Service realized that a solution of Alta's avalanche problem would go a long way towards making winter travel and winter recreation in the West, much less hazardous. State and county highway departments, railroad, logging and utility companies would also stand to benefit from the solution.

During the winter of 1937-38, (before the construction of the first ski lift), the Forest Service initiated formal avalanche investigation at Alta. The Avalanche Research Center opened there was the first of its kind in the United States.<sup>37</sup> The first full-time "snow and avalanche observer" assigned to the center was C. D. Wadsworth. Personnel assigned to the station later were known as "snow rangers."<sup>38</sup>

The reason for locating the study center at Alta is expressed by the following:

Alta's excellent skiing slopes were chosen as a "laboratory" not because they are more dangerous, but because this was the first true alpine ski area to be developed in the United States and because detailed records of snowslides have been kept in this section for the last 75 years.<sup>39</sup>

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<sup>36</sup>n.a., Skiing, (U.S. Department of Agriculture, Forest Service PA-525: (Government Printing Office, 1964), 3.

<sup>37</sup>Ibid., p. 6.

<sup>38</sup>Jackson, Natural History, LXIV, No. 2, 66.

<sup>39</sup>n.a., "Look Out Avalanche," Popular Mechanics, LXXXII (December, 1949), 89.

In 1937, the U.S. Weather Bureau assisted the Forest Service in installing weather observation instruments at Alta. The station personnel also learned what they could from records of the earlier periods. Since the establishment of the station, detailed, scientific data has been recorded and studied.<sup>40</sup>

The initial attempts at control were negative in that they did not solve the problem but merely attempted to recognize dangerous conditions and keep people out of the ski areas when they arose. The snow rangers were empowered to close the slopes to skiing and close the canyon to vehicular traffic when avalanche danger threatened.<sup>41</sup> This was accomplished by placing brightly colored signs at control points on the ski slopes or closing the entire area and the canyon road. Later on more positive efforts were taken when measures were employed to stabilize the unstable snow. Mechanical means such as crossing the slopes on skis, or exploding hand placed charges of high explosives in the danger area, brought about improved stability of snow conditions.<sup>42</sup> The objective of mechanically seeking snow stability was not necessarily to artificially trigger an avalanche, but to determine the stability of the snow. If an

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<sup>40</sup>U.S. Department of Agriculture, Forest Service, Snow Avalanches, A Handbook of Forecasting and Control Measures, Agriculture Handbook No. 194 (January, 1961), p. 7.

<sup>41</sup>Koziol, June 27, 1966.

<sup>42</sup>Skiing, PA-525, p. 6.

avalanche resulted, the sliding snow moving down the mountainside indicated instability, but at the same time, once it slid, that particular hazard was removed.<sup>43</sup>

The process was then repeated at other suspected portions of the hill, until the area was once again safe for skiers. Before actual triggering operations began, the snow rangers closed off the particular area they were going to be working in, with "Area Closed--Avalanche Danger" signs. This enabled them to trigger snowslides down the mountainside without endangering any lives, except for those of the snow rangers themselves. A Forest Service Official once commented:

The only good avalanche is one that has already happened harmlessly.<sup>44</sup>

Following the close of the Second World War, a more expert system was developed to explode explosive charges in the snow. During the period between 1945-46, the Utah National Guard cooperated with Wasatch National Forest officials and made available several 75 mm French artillery pieces. Ammunition was obtained from the Tooele (Utah) Army Ordnance Depot. Although the artillery concept was borrowed from Europe, its application at Alta was the first in the United States.<sup>45</sup>

The use of this new Forest Service avalanche control "tool" was

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<sup>43</sup>Snow Avalanches, p. 57.

<sup>44</sup>"Look Out Avalanche," Popular Mechanics, LXXXII, No. 12, 90.

<sup>45</sup>Koziol, June 27, 1966.

pioneered by Wasatch National Forest Supervisor, F. C. Koziol and snow ranger, Monty Atwater. The latter had received artillery training with the U. S. Mountain troops during the Second World War.<sup>46</sup>

In 1950, the system was further refined with the introduction of 75 and 105 mm recoilless rifles.<sup>47</sup> At the present time, the recoilless rifles are mounted in fixed positions atop specially designed and constructed gun towers. The towers are raised above the maximum level of the snow accumulation and provide the recoilless rifles with a command of the mountainside (see Figure 13). Space is provided inside the towers for storing ammunition. During an average winter about 700 rounds of 75 mm and 105 mm of ammunition are fired in avalanche control.<sup>48</sup>

Improved techniques--increased firing range, accuracy and shock power--brought about through the use of artillery has effectively decreased avalanche danger for the skiing public at Alta. The risk to the men doing the control work also has been considerably reduced. Using range charts, the recoilless rifles can be "blind" fired during storms and other periods of poor visibility. This last feature decreases costly and inconvenient delays that otherwise would occur if they could only be fired during clear weather.<sup>49</sup>

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<sup>46</sup>"Look Out Avalanche," Popular Mechanics, LXXXII, No. 12, 70.

<sup>47</sup>Koziol, June 27, 1966.

<sup>48</sup>Interview with Ray Lindquist, Snow Ranger, Alta, Utah, April, 1966.

<sup>49</sup>Koziol, June 27, 1966.

The Alta Research Center is currently headed by Edward R. LaChapelle, a glaciologist from the University of Washington. Information gathered by the Alta Station and from other parts of the nation and from Europe is widely distributed throughout the United States. The basic U. S. Avalanche control work, Snow Avalanches, A Handbook of Forecasting and Control Measures, has recently been translated into the Russian language.<sup>50</sup>

That the "close-the-area and blast-the-snow" system has been successful at Alta is demonstrated by the fact that during the twenty-nine years that the Forest Service has been in charge of the area, only one victim has succumbed in a snowslide.<sup>51</sup> However, a big share of the responsibility rests with the skiers and others using the canyon during the winter time. No matter how closely the Forest Service and the area management cooperate to eliminate the hazard, the system will not be fool-proof unless skiers observe the hard-to-miss bright orange "Area Closed" signs. Nevertheless, it is difficult to devise a system which will guarantee protection to the heedless and the foolhardy.

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<sup>50</sup>Interviews with Edward LaChapelle, Avalanche Hazard Forecaster, January, 1966.

<sup>51</sup>Koziol, June 27, 1966. In 1941 a skier-death occurred in the Snake Pit region, near Alta. At least one other death occurred in the canyon near the road. This was the result of highway maintenance crews working on the canyon road after having been advised by the Forest Service of the existing hazard.

### Further Development of Facilities

The winter of 1938-39 was the first operating season for the Collins ski lift. At that time there were no adequate overnight accommodations at Alta. The Denver and Rio Grande Railroad, which previously had operated a spur line up the canyon to serve the mines, contributed \$25,000 and additional funds were raised through the sale of stock, to construct Alta's first ski lodge. Although only partially completed, the lodge was opened and served the public during the winter of 1941-42.<sup>52</sup>

The Forest Service, using Civilian Conservation Corps labor, constructed the Snow Pine Lodge in about 1940. This granite-block lodge towered three stories high--until an avalanche remodeled it by removing the top story. The lodge's roof (a steel-reinforced concrete slab) is now flush with the north side of the hill where it stands. With this modified construction, slides run over the top of the lodge doing but little damage.<sup>53</sup> It is interesting to note that several of the rooms on the bottom level of the lodge incorporate abandoned ore-lockers of the famous Emma Mine into its construction.<sup>54</sup>

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<sup>52</sup> Interviews with C. B. Morton, Vice President and General Manager, Salt Lake City Winter Sports Association, Miggs Durrence, wife of Dick Durrence, first Manager of the Alta Lodge, winter 1965-66.

<sup>53</sup> Morton, winter 1965-66.

<sup>54</sup> Salt Lake Tribune, April 1, 1945.

Another ski lift, the Peruvian, was constructed in 1940. The Peruvian lift was built to the top of the ridge just south of the upper terminal of the Collins lift.<sup>55</sup> Alta was just getting a good start when the Second World War slowed down its expansion. Despite war-time restrictions of construction materials, an additional chair lift up the base of Rustler Mountain was installed.<sup>56</sup> Although many of the country's ski areas closed down for the duration of the war, Alta remained open for business but the lodges were closed to the public. The ski area actually made a contribution to the war effort as Army Air Corps personnel received winter survival instruction on its slopes during the war's early years.<sup>57</sup> Alta also served as a recreation center for personnel of some of the military installations located near Salt Lake City. Many soldiers from warm climates, thus exposed to the sport of skiing, became enthusiasts after the war.<sup>58</sup>

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<sup>55</sup>Morton, winter 1965-66. The Peruvian Lift burned down in 1953 and the money received from the insurance facilitated the construction of another lift in a different location the following year.

<sup>56</sup>Ibid. The Rustler lift was designed to provide ski slopes of a gentle nature for beginning skiers. Due to the avalanche condition at the foot of Rustler Mountain, the lift was re-located further to the east some years later. The lift has since been dismantled and its function to provide a beginner's area taken over by a newly constructed lift in the Albion Basin.

<sup>57</sup>Interview with Miggs Durrence, wife of first Manager of Alta Lodge and noted skier, January 29, 1966.

<sup>58</sup>Robert S. Lewis, "Skiing at Alta," News Bulletin of the Mineralogical Society of Utah, IV, No. 1 (August, 1943), 52.

The Ski Resort Today

We ski, sometimes and fall,  
We enjoy a ski-ball,  
Oh, Romantic Alta,  
There's fun there for all.<sup>59</sup>

In providing "fun for all," Alta has grown, since 1938-39, from a single ski lift which could accommodate 400 skiers per-hour, to a winter sports complex involving several millions of dollars, whose ski lifts in 1965-66 could handle 2,325 skiers per hour.

The area manager estimates the Salt Lake City Winter Sports Association capital investment at Alta is in the neighborhood of \$700,000. This figure represents the investment in all the chair lifts, rope tows owned by the association, public shelter, and employee housing facilities.<sup>60</sup> The lodges and other facilities represent an estimated additional investment of some one and one-half million dollars.

The increased lift-capacity was brought about by construction of new lifts, and by increasing the operating capacity of existing lifts. Although the current cost of constructing a new mile long, double-chair lift (carries two passengers side-by-side) comes to some \$200,000, nevertheless,

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<sup>59</sup>Mique Moffat, "Oh Romantic Alta," Utah, IX, No. 10 (October, 1947), 26. This song, written to the tune of "Achuiber Augstine," was written by "Mayor" Watson's daughter, who spent her early childhood at Alta. A ski-ball is a type of cocktail utilizing snow as one of its ingredients.

<sup>60</sup>Morton, winter 1965-66.



new lifts are proposed for further development of the area.<sup>61</sup>

At present four lifts, with a combined length of 16,190 feet, serve the area. In addition to the ski lifts, six access rope-tows span another 3,000 odd feet. The access tows serve to transport skiers along the flats between ski lifts and to take them from the canyon floor to the lodges on the north slope. The lodges themselves own and operate the rope-tows leading from the bottom of the ski runs up to the lodges.

Table 8 lists statistics on the various lift facilities at Alta as of the winter of 1965-66.

These lifts opened up skiing on more than seventy different runs along and down the ridges, gulches and basins. The skier can leave the beaten path and vary his route of descent at almost any time and at almost any point by taking off by himself and making his "own run."

Rustler Mountain and the upper reaches of Albion Basin were opened up in 1954 by the construction of the Germania lift.<sup>62</sup> Descending from the top of Rustler Mountain is a run called "High Rustler." An article in Sports Illustrated magazine describes the run as ". . . possibly the

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<sup>61</sup>Ibid. In addition to the expansion proposed by the Salt Lake City Winter Sports Association, another organization known as the Snow Bird, proposes to develop lift and other facilities near Gad Valley, slightly west of Alta.

<sup>62</sup>Germania lift was constructed from insurance money received following the burning of Peruvian lift, and from the sale of convertible bonds.

TABLE 8  
LIFT FACILITIES<sup>a</sup>

Name of lift	Type of chair	Length in feet	Vertical rise in feet	Capacity per hour
Collins	Single-S	2,740	750	425
Wildcat	Double-D	4,250	1,250	700
Germania	Double-D	4,000	1,000	600
Albion <sup>b</sup>	Double-D	5,200	850	600

<sup>a</sup>Morton, winter 1965-66.

<sup>b</sup>Although the name "Never Sweat" was given to the lift in an attempt to perpetuate some of the mining lore atmosphere of the past, it never "caught on" with the skiing public and the area management reverted to the use of the name of the basin in which the lift serves.

scariest-looking run in the west, a three-quarter of a mile chute with forty per cent slope, no trees and frequent avalanche."<sup>63</sup>

The expert skier can test his ability by climbing the 10,000 foot level of the upper terminal of the Germania lift to the 11,000 foot top of Mt. Baldy and skiing the chutes down its nearly-sheer in places, 1200 foot face. At the same time, the "snow bunnies" (beginning skiers) can practice on the gentler slopes opened by the Albion lift. The more advanced skier has access to Peruvian Gulch and Gad Valley, all challenging runs because of their fast descent and isolation of tough runs, merely by crossing over the top of Peruvian Ridge. The Wildcat double-chair lift leaves

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<sup>63</sup>Ezra Bowen, "Deep Powder in Utah," Sports Illustrated, VI, (January, 1957), 25.

skiers on top of Peruvian Ridge. The skier with cross-country ambitions has vast areas available to him within the Albion Basin. By crossing the ridges surrounding the Basin on the south and east, the skier also has access to American Fork Canyon, Brighton (a sister ski resort over the ridge in Big Cottonwood Canyon), and the Heber Valley.

Alta's five ski lodges offer over-night accommodations for about 280 guests. Three of the lodges cater only to guest staying at the lodge. Facilities for the day-skier are provided by the other two lodges and a public shelter, located on the ski hill between the Collins and Germania lifts. Other buildings at Alta are: a Catholic Church, two Forest Service stations, and about twelve private homes.

The year-round Alta population fluctuates today much as it did in the mining days except that the order is reversed. Now the winter season has the largest population. The 1965-66 winter population (estimated) of about 300 persons is almost identical to the summer population of the canyon in 1880.<sup>64</sup>

Because Alta is situated so near to a large population center (less than an hour from downtown Salt Lake City), the majority of skiers come from within the State of Utah.<sup>65</sup> Most Utah skiers come only for the day's

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<sup>64</sup>U.S. Bureau of the Census, "Tenth Census, Population, 1880," Vol. II, 20-25.

<sup>65</sup>Kenneth Christian Jessen, "The Utah Ski Industry" (unpublished Master's Thesis, College of Business, University of Utah, 1964), p. 49.

skiing and usually do not use the overnight accommodations. Because of the relatively good transportation connections (bus, plane, train, and automobile) between Salt Lake City and other portions of the nation, out-of-state skiers often find it more convenient to spend several days skiing at Alta than to go to a ski resort in their own locality. A skier from New York City can reach Alta in a little over five hours travel time using air travel to the city and car to the resort.

The estimated recreational use at Alta for the 1964-65 winter is shown below in Table 9.

TABLE 9  
RECREATION VISITS 1964-65<sup>a</sup>

<u>Month</u>	<u>Number of Visits</u>
December . . . . .	34,871
January . . . . .	35,961
February . . . . .	57,127
March . . . . .	35,675
April . . . . .	<u>49,089</u>
Total	230,723

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<sup>a</sup>Wasatch National Forest, Salt Lake Ranger District, "Recreation Visits, Annual Statistical Report." The data is computed from results obtained from a vehicle counting device situated crossing the highway. Periodic checks are made to ascertain the average number of occupants per car and the result obtained by multiplying this number by the total number of vehicles using the road.

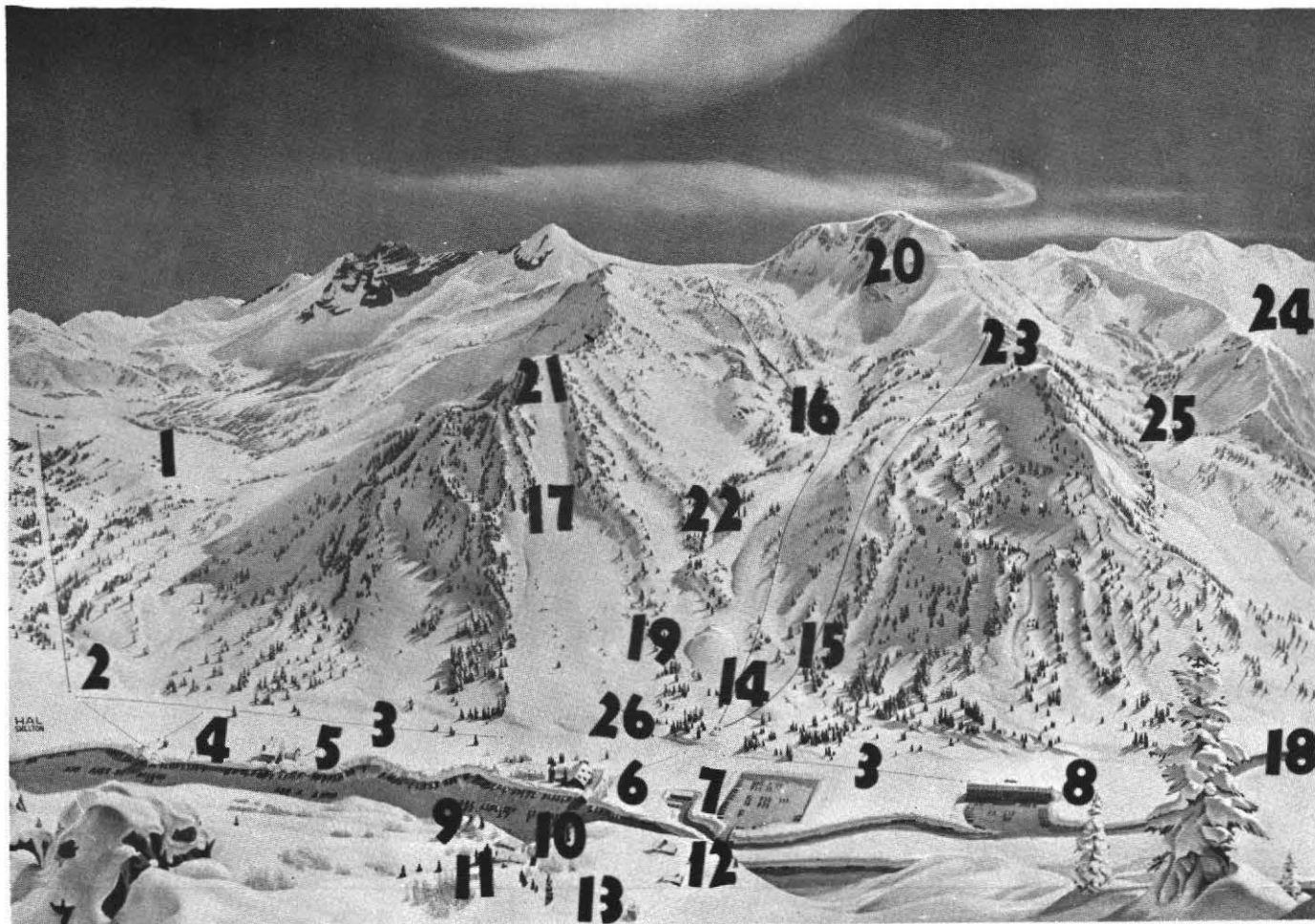


Figure 13. Alta ski resort, winter 1965-66

Courtesy Salt Lake City Winter Sports Association

## KEY

1. Albion Basin (9,400 feet)
2. Albion ski lift
3. Rope tows
4. Snow Pine Lodge
5. Rustler Lodge
6. Alta Lodge (8,600 feet)
7. Gold Miner's Daughter Lodge
8. Alta Inn
9. Catholic Church
10. Ski shop
11. Bunk house
12. U.S. Forest Service ranger stations and Avalanche Research Center
13. Gun Tower with 105 mm recoilless rifle
14. Collins ski lift
15. Wildcat ski lift
16. Germania ski lift
17. High Rustler ski run (top 9,800 feet)
18. State Highway No. 210 (28 miles to Salt Lake City)
19. Abandoned mine dumps
20. Mt. Baldy (11,068 feet)
21. Rustler Mountain
22. Collins Gulch
23. Peruvian Ridge (9,850 feet)
24. Gad Valley
25. Peruvian Gulch
26. Abandoned cemetery



Figure 14. Snow ranger sights French 75 mm artillery piece prior to "shooting an avalanche," c.a. 1947

Courtesy Wasatch National Forest





Figure 15. Avalanche crashing down Rustler Mountain

Courtesy Wasatch National Forest





Figure 16. "Closed Area--Avalanche Danger"

Courtesy Wasatch National Forest



Figure 17. Avalanche keeps road crews busy

Courtesy Wasatch National Forest

Regardless of whether the skier comes from Salt Lake City or its environs, or from out-of-town, to all practical purposes he must take the road up Little Cottonwood Canyon, to get to Alta.<sup>66</sup> Transportation up and down the canyon has traditionally been an obstacle to development of the area. In 1873, Alta residents petitioned the Salt Lake County Court for an appropriation to repair the canyon road which at that time was in "terrible condition."<sup>67</sup> Mining interests earlier were responsible for many improvements on the road. During later years, Salt Lake County and the Forest Service assumed most of the responsibility for maintaining the road. In 1941, the Little Cottonwood Canyon road became a part of the State Highway system and was designated as SR-210. The State also assumed the job of snow removal, formerly done by the county. From January to March of 1965, the State spent \$8,921 to keep the road clear of snow and avalanche debris. The average annual expenditure for maintaining and improving the road is about \$131,000.<sup>68</sup>

During the summer of 1965, the Utah National Guard built an auxiliary road skirting the Mt. Superior slide zone. It is believed that this new road, on the south side of the canyon, will avoid former hazardous and

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<sup>66</sup>Passengers have chartered a helicopter direct from the Salt Lake Airport and made the trip to Alta by air, landing in the canyon floor below the lodges, but such a procedure is a somewhat rare exception.

<sup>67</sup>Utah Mining Gazette (Salt Lake City), September 20, 1873.

<sup>68</sup>Letter from Jane A. Doyle, Information Specialist, Utah State Department of Highways, Salt Lake City, Utah, May 23, 1966.

bothersome interruptions due to avalanche snow and debris blocking the old road in the avalanche area. Up to this point, however, the road has not yet proved to be the boon it yet promises to be.

A heavy storm started on January 23, 1965, and when it was over a week later, nearly ten feet of new snow had fallen on top of already substantial accumulation. The result was total closing and evacuation of the area. Guests and employees left the area by tracked snow vehicle and by skiing down the canyon over the almost continuous debris left in the slide paths of numerous avalanches. The estimated loss from non-operation of the area ranged between \$10,000 and \$15,000 per day for a period of about two weeks.<sup>69</sup> Simply closing a few ski areas was not sufficient protection. All lifts were closed and persons restricted to their lodges. In view of the hazardous condition, Forest Service awareness and action averted any loss of life. The fact remains, however, that in spite of anything man can do, he is still faced by limits on his action placed upon him by nature.

#### The Greatest Snow on Earth<sup>70</sup>

The snowfall at Alta is consistent year after year. Some ski resorts are plagued, in bad years, by insufficient snowfall and are forced to make

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<sup>69</sup>Morton, winter 1965-66.

<sup>70</sup>The heading is borrowed from the Utah Tourist and Publicity Council's advertising theme, promoting skiing in the State of Utah.

up for it through the use of artificial snow-making machines. Alta, on the other hand, is well provided for by nature and often has too much and too frequent (assuming that such a condition can exist at a ski area) snow, but never too little. The average snow depth per month is indicated in Table 10.

TABLE 10  
AVERAGE MONTHLY SNOW  
DEPTH IN INCHES<sup>a</sup>

<u>Month</u>	<u>Snow Depth</u>
November . . . . .	58.85
December . . . . .	84
January . . . . .	90.8
February . . . . .	75
March . . . . .	97.9
April . . . . .	54.4

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<sup>a</sup>Wasatch National Forest, Alta Avalanche Research Center, "Alta Cumulative Snow and Avalanche Data, Twenty Year Average Snow Depth, 1946-1966." It is not un-common to find the snow accumulation at the end of the ski season in May well in excess of ten feet.

The ski season begins the Saturday before Thanksgiving (sometimes sooner) and runs to the first or second day in May. The ski season is usually determined by the demand for skiing by skiers and not by the snow conditions. Spring with all its competitive aspects views too successfully with skiing and brings about its decrease in popularity in the spring months.

Besides the consistency of its snowfall, Alta is world-famous for

its powder snow.<sup>71</sup> Powder snow skiing differs somewhat from "packed" slope skiing both in ski technique and in the type of snow required.<sup>72</sup>

Edward LaChapelle, of the Alta Research Center, in commenting on powder skiing and types of powder snow makes this point:

The highest snow densities in terms of grams of water content per cc of snow . . . are found at Alta, an area long famed for its deep, fluffy powder snow. This reflects a fact known to the experienced snow ranger but usually ignored by the average skier: the best deep powder skiing is not found in the lightest snow, but rather in snow with enough "body" to provide good flotation for the running ski. Density is by no means the entire story in skiing quality, however, as illustrated by the fact that Stevens Pass densities differ very little from those at Alta, though the quality of the powder snow skiing there is not as good. The important differences in this case are probably temperature and altitude.<sup>73</sup>

Powder snow skiing has the skier's skis passing predominantly through and not over the top of the snow. Powder skiing requires a flexible ski so that the tip of the ski will tend to ride out of the snow and float along its surface.<sup>74</sup> Alta's early-day powder skiers planed off the tops of their

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<sup>71</sup>Interview with Edward LaChapelle, Avalanche Hazard Forecaster, Alta Research Center, January 8, 1966.

<sup>72</sup>Packed slope skiing results from packing or smoothing the surface of the snow. This is done in the normal course of skiing by the skiers themselves or through mechanical means such as motorized, tracked, vehicles pulling a device to compact the snow. Skiing is then done on a comparatively smooth base.

Skiing takes place on the surface of the snow pack. Powder skiing differs in that the snow is not compacted and the skier floats through the layer of "powder."

<sup>73</sup>Edward LaChapelle, "The Density Distribution of New Snow," Alta Avalanche Study Center Project F, Progress Report No. 2, U.S. Department of Agriculture, Wasatch National Forest (March, 1962), p. 2. (Mimeographed.)

<sup>74</sup>A condition that is strived for, but not often attained.

skis to make them more flexible and more able to ride on the surface of the snow.<sup>75</sup> Nowadays, flexible "metal" skis have been developed which are the most popular among Alta's powder snow skiers. Ski poles are, in contrast to the earliest skiing at Alta, a well accepted part of the skiers equipment.

Because of the favorable snow conditions at Alta, powder snow is a regular occurrence. The frequency of storms replenishes the snow oftentimes before it is "skied out" (cut through, churned up and packed down).

Alta was a natural location for the development of a distinctive powder skiing technique jokingly referred to among skiers as the "Alta Machine." In many ski areas a new snowfall (good powder snow or otherwise) means that the area management and the skiers have to work that much harder to get the new snow compacted so that they can get onto packed-slope skiing.<sup>76</sup> While at Alta, in the case of those who have bothered to master the technique, a new snowfall means a delightfully different way of skiing.

The Alta powder skiing technique seems to have been developed during the period from 1937 to the late 1940's. It is impossible to name the

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<sup>75</sup> Engen, May 26, 1966. The wooden tops of the skis were planed down between the tip (curved portion of the front of the ski) and the binding (thicker portion of the ski, near the middle where the bindings are secured).

<sup>76</sup> The area management operates gas powered, tracked vehicles that are capable of traveling over the snow, in an effort to compact the snow on the beginners runs (Albion Lift) and the more gentle main runs of Collins Gulch. The other slopes are left to the powder skiers.

man most responsible for its "evolution." The early snow rangers, ski instructors, lodge managers and regular ski enthusiasts all contributed in some way to the development of the technique. The professionals who had to ski in the deep powder snows of Alta, at some point realized that instead of having to merely "get through" the powder snow, they could "exploit" the powder and have a new type of skiing. In addition to the snow itself, the steep, narrow chutes at Alta, conditioned the skiers to make short symmetrical "S"-turns in the snow. The short turns helped to control the skiers speed while descending a steep slope.<sup>77</sup>

The result of the natural conditions at Alta upon the powder skiers, was a technique which espoused the theory that: both skis be kept together, the weight of the body be kept evenly distributed upon both skis, the skis be kept pointed predominantly down the steepest portion of the hill (normally the direction the skier usually takes), the back of the skier kept stiff, erect, and farther back, that the elbows be kept in to the body and the ski poles be forward and held ready for a turn.

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<sup>77</sup> Interviews with: Alf Engen, Eddie Morris, Ted Johnson, Miggs Durrence, Edward and Dolores LaChapelle, and other ski instructors, Forest Service personnel, and interested powder skiers.





Figure 18. Early operation of Collins ski lift. Note wooden towers. Alta Lodge in the background  
Courtesy Wasatch National Forest



Figure 19. Down the lift line of Wildcat ski lift. Note steel towers.



Figure 20. Lowell Thomas (noted news commentator and skier) discusses skiing with "Mayor" George H. Watson  
Courtesy Wasatch National Forest





Figure 21. Expert skier demonstrates deep powder technique on virgin snow at Alta

Courtesy Wasatch National Forest

## CONCLUSION

The majority of the mines at Alta are now closed. All traces of Alta City have long since disappeared from the townsite. Yet, all traces of the mining era are not entirely gone. The parking lots that accommodate the skiers are located on the leveled-off tops of abandoned mine dumps on the north side of the canyon. The mine tunnels themselves provide the culinary water supply for the ski area. The ore locker of the famous Emma Mine was incorporated into the construction of the Snow Pine Lodge.

Snow sheds, of the type devised by miners, lead from the highway to the lodges, thus eliminating the necessity of shoveling voluminous amounts of snow from the stairways to keep them open throughout the winter. The lodges themselves are constructed on the few plots of ground that have been observed to be "relatively safe-from-avalanches."

Today skiers arrive at Alta by taking the highway that follows the old mule tram which serviced the mines during the 1870's. Upon their arrival at Alta, the skiers find many of the ski runs enhanced by the presence of mine dumps. Alta's first ski lift was the result of the conversion of an aerial mining tramway which was converted over for skiing purposes.

Alta boasts one of the few "skied upon cemeteries" in the United States. The "boots on cemetery," used during the mining period but abandoned now, is located in the center of one of the main ski runs. Panic was created at Alta eight or ten years ago when a flood washed out several

remains from the cemetery.

Many of the old mining names live on in the ski resort. The names of the mountains surrounding Alta are those given to men during the mining days. The ski area management has tried to preserve other names by designating various ski runs by prominent names left from the working periods of the mines.

The future of the ski area is a bright one. The Salt Lake City bid on the 1972 Winter Olympic Games and its proposed bid on the 1976 Games both include Alta as one of the major factors in its presentation. Problems from out of Alta's past are still with it today and will continue to challenge it in the future. The avalanche hazard, while held to a minimum of destructive instances could erupt any winter to seriously hamper skiing at the resort. Keeping the road open and repaired will continually require the application of man's intellect and materials. Alta and Little Cottonwood Canyon still, as in pioneer times, offers an economic as well as recreational boost to the State of Utah.

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## APPENDIX

### BY-LAWS OF LITTLE COTTONWOOD MINING DISTRICT JUNE 2, 1870<sup>a</sup>

Article 1. This District shall be known by the name of "Little Cottonwood Mining District," and is bounded as follows, to wit: Beginning at the toll-gate, near the entrance to Little Cottonwood Canyon, and running south to the summit of the mountain; thence easterly along the summit to the center of divide between Big Cottonwood and Little Cottonwood Canyons; thence northerly along the summit to the center of the mountains on the north side of the canyon; thence westerly along the summit to a point due north of the toll-gate; thence to the point of beginning.

Article 2. There shall be an officer for said District to be called the Recorder, who shall be elected on the third Monday in August by the miners of the district at their annual meeting.

Article 3. The Recorder shall procure and keep a substantially bound book, to be called the "Book of Locations," in which he shall record all notices of location claims, whether for mining or other purposes connected therewith.

Article 4. He shall carefully keep and preserve all original papers filed with him for record, and deliver them upon proper demand to the person or persons entitled to receive the same; and faithfully do and perform all other acts and duties required of him by these laws.

Article 5. The Recorder shall hold office for one year, or until his successor is duly elected; provided however, that he may be removed at any time, or for misconduct in office or neglect of duty as prescribed by the laws of this district.

Article 6. The Record Books shall be kept within the limits of the district, and shall be kept open during business hours for examination and inspection.

Article 7. The Recorder may appoint a deputy under him for whose official acts he shall be held responsible.

Article 8. He shall note upon the back of each notice of location or other instrument filed for record, the day and hour of filing thereof, and such instrument shall be deemed recorded from and after the date of such filing for record.

Article 9. When a claim shall have been located and recorded, he shall, upon request, make and deliver to the claimant, his agent, or attorney, a certificate of such location and record over his official signature, which certificate shall be conclusive evidence of the facts therein stated.

Article 10. All examinations of the Record Books must be made in the presence of the Recorder or his deputy; and when his term of office shall expire, the Recorder shall turn over to his successor, all books, papers and other property pertaining to his office.

Article 11. The Recorder shall be authorized to demand and receive for his services the following fees to wit:--

For each lode recorded by any person or company of persons...	\$3.00
For each claim otherwise recorded .....	.50
For each official certificate .....	.50
For each deed, power of attorney, or bill of sale .....	1.50

Article 12. No person, or company of persons, shall be entitled to hold more than two hundred (200) feet as discovery of a lode, nor more than two hundred (200) feet for each person located; and the number of feet in all shall not exceed three thousand (3,000) feet. The surface width requisite for mining purposes, or for the convenient workings of the same, shall not exceed fifty (50) feet on each side of the walls of said vein or lode. When it may become necessary for mining or milling purposes that an appertenant or adjacent tract is requisite, the same shall not exceed in its limits a space four hundred (400) feet long by three hundred (300) feet in width; and such tract may be situated at the nearest available point with the limits of the district, provided the same shall not be distant more than one half mile from said vein or lode.

Article 13. All claims shall be recorded within twenty days of the location, and a blazed tree, stake or board shall designate the name of the lode and amount of ground claimed by the location of the lode, unless the parties shall hold the same by constant labor thereon.

Article 14. In making a record of locations of any claim, the same shall be definitely described with reference to some natural or artificial monument. Each lode shall be represented every year by twenty-five (\$25) dollars worth of labor actually performed thereon; otherwise it will be considered abandoned and be open for re-location, unless it can be shown to the satisfaction of the Recorder that one thousand (\$1,000) dollars worth of labor had been performed or a patent taken for the same. In case of any dispute arising in regard to the amount of labor performed, three disinterested miners shall be selected to decide the question.

Article 15. Any person or persons may locate a tunnel by posting at the point of commencement a notice, such as is required in the location of a lode, specifying the name or names of the person or persons claiming the right, the course such tunnel is intended to run, the lode or lodes it is intended to work, and by filing for record a similar notice in the Recorder's office. Labor shall be performed thereon the same as required for holding a lode.

Article 16. No person shall be entitled to vote at any meeting of miners unless he owns a bona fide interest in a mining claim in the district.

Article 17. The By-Laws of this district may be repealed, revised or ammended at any regular meeting that may be duly called by ten (10) or more bona fide claim holders in said district.

Article 18. Ten days notice shall be given in writing and posted in three separate places in the district previous to any meeting for a revision of the laws; and special meetings may be called in the same manner.

Article 19. All laws, or parts of laws, in this district, conflicting with these laws, or any of the mining laws of the United States, are hereby repealed.

Article 20. These laws shall take effect and be in force from and after their passage.

O. F. STICKLAND, Chairman

W. W. CHISHOLM, Secretary

I certify the foregoing to be a correct copy of the laws of Little Cottonwood Mining District, as now in force, June 2, 1870.

J. F. WOODMAN, Recorder.

Per W. W. CHISHOLM, Deputy.

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<sup>a</sup>John R. Murphy, The Mineral Resources of the Territory of Utah (San Francisco: A. L. Bancroft and Co., 1872), pp. 57-9.

VITA

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